

United States

*Vol 2039*

# Circuit Court of Appeals

For the Ninth Circuit.

HAYNES STELLITE COMPANY,  
a Corporation,

Appellant,

vs.

STOODY COMPANY, a Corporation,

Appellee.


## Transcript of Record

Upon Appeal from the District Court of the United  
States for the Southern District of California,  
Central Division.

APR 7 1938

PAUL P. O'SHEEN,

CLERK



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[Clerk's Note: When deemed likely to be of an important nature, **errors** or doubtful matters appearing in the original certified record are printed literally in *italic*; and, likewise, cancelled matter appearing in the original certified record is printed and cancelled herein accordingly. When possible, an omission from the text is indicated by printing in *italic* the two words between which the omission seems to occur.]

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In the District Court of the United States for the Southern  
District of California, Central Division.

Equity No. 690-J

STOODY COMPANY, a Corporation,

Plaintiff,

vs.

HAYNES STELLITE COMPANY, a Corporation,

Defendant. [1\*]

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NAMES AND ADDRESSES OF ATTORNEYS.

FOR APPELLANT:

Messrs. LYON & LYON, and

HENRY S. RICHMOND,

811 West Seventh Street, Los Angeles, California;

FOR APPELLEES:

Messrs. HAZARD & MILLER,

706 Central Building, Los Angeles, California;

CHARLES C. MONTGOMERY,

810 Title Guarantee Building, Los Angeles, California.

[2]

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\*Page-number appearing at the foot of page of original certified Transcript of Record.

[Title of Court and Cause.]

CITATION ON APPEAL.

United States of America—ss.

THE PRESIDENT OF THE UNITED STATES OF  
AMERICA

To STOODY COMPANY, a corporation: GREETING:

YOU ARE HEREBY CITED AND ADMONISHED to be and appear in the United States Circuit Court of Appeals for the Ninth Circuit in the City of San Francisco, California, thirty (30) days from and after the date this citation bears, pursuant to Order allowing Appeal filed in the Clerk's Office of the District Court of the United States for the Southern District of California, Central Division, wherein Haynes Stellite Company, a corporation is defendant and you are plaintiff, to show cause, if any there be, why the Order rendered against the said Appellant as in said Order allowing Appeal mentioned, should not be corrected and why speedy justice should not be done the parties in that behalf.

WITNESS the Honorable Wm. P. James, Judge of the District Court of the United States, for the Southern District of California, this 13 day of December, A. D., 1935.

WM. P. JAMES,

Judge of the District Court of the United States  
for the Southern District of California.

SERVICE of the foregoing Citation by copy acknowledged this 14 day of December, 1935.

STOODY COMPANY,  
By HAZARD & MILLER,  
FRED H. MILLER,

Its Attorneys.

[Endorsed]: Filed Dec. 16, 1935. [3]



In the United States District Court, Southern District  
of California, Central Division

In Equity on Letters Patent No. 1,803,875, Issued May 5, 1931  
Eq. 690-J.

STOODY COMPANY, a corporation,

Plaintiff,

vs.

HAYNES STELLITE COMPANY, a corporation,

Defendant.

### BILL OF COMPLAINT.

To the Honorable Judges of the United States District Court  
for the Southern District of California, Central Division:

THE PLAINTIFF, STOODY COMPANY, complaining of  
the herein named defendant, alleges:

#### 1.

That the plaintiff, Stoodly Company, is a corporation duly  
organized and existing under and by virtue of the laws of the  
State of California, having its principal office and principal  
place of business in the City of Whittier, County of Los Angeles,  
State of California.

#### 2.

That, upon information and belief, Haynes Stellite Company,  
defendant herein, is a corporation duly organized and existing  
under and by virtue of the laws of the State of Indiana, having  
its principal place of business at Kokomo, Indiana, and having a  
regular and established place of business at 2305 52nd Street,  
City of Los Angeles, County of Los Angeles, State of California.

## 3.

That the defendant has committed, is now committing, and is threatening to continue to commit the acts of infringement complained of therein within the Southern District of California, Central Division, and elsewhere within the United States.

## 4.

This Honorable Court has jurisdiction of the cause of action herein as the same is a suit in equity arising under the patent laws of the United States and based upon infringement of Letters Patent No. 1,803,875, granted May 5, 1931, to plaintiff, Stooddy Company, as the assignee of Winston F. Stooddy, Shelley M. Stooddy, and Normal W. Cole, for Improvements in Methods of Facing Tools and Resulting Product.

## 5.

That, as plaintiff is informed and believes, heretofore and prior to the 30th day of January, 1928, Winston F. Stooddy, Shelley M. Stooddy, and Norman W. Cole, all citizens of the United States, and then residents of the City of Whittier, County of Los Angeles, State of California, were the first, original, and joint inventors or discoverers of a certain new and useful method of facing tools and the resulting product not known or used by others in this country before their invention or discovery thereof and not patented nor described in any printed publication in this or any foreign country before their invention or discovery thereof or more than two years prior to their hereinafter mentioned application for Letters Patent of the United States, and not in public use nor on sale in this country for more than two years prior to the date of their said application for Letters Patent of the United States and which had not been abandoned nor patented



nor caused to be patented by them or their representatives or assigns in [6] any country foreign to the United States on an application filed more than twelve months prior to the filing of their application for Letters Patent of the United States as hereinafter mentioned.

## 6.

That the said Winston F. Stooddy, Shelley M. Stooddy, and Normal W. Cole, on or about the 30th day of January, 1928, being then, as aforesaid, the first, original, and joint inventors or discoverers of said improvement in a method of facing tools and resulting product, made application in writing to the Commissioner of Patents for the grant of Letters Patent for said invention and duly filed on January 30, 1928, an application for Letters Patent of the United States, Serial No. 250,069, disclosing, describing, and claiming said invention in accordance with the then existing laws of the United States. That simultaneously with the execution of said application said Winston F. Stooddy, Shelley M. Stooddy, and Normal W. Cole duly executed and delivered to Stooddy Company, the plaintiff herein, a corporation of the State of California, an assignment of the entire right, title and interest in and to said invention on a method of facing tools and resulting products, which assignment contained the request that the Letters Patent to be granted upon said application be issued to the said Stooddy Company; that said assignment was duly recorded in the United States Patent Office on or about February 13, 1928.

That the said Winston F. Stooddy, Shelley M. Stooddy, and Norman W. Cole, and the plaintiff herein, having duly complied in all respects with the conditions and requirements of the United States Statutes in such cases made and provided and after due examination by the Commissioner of Patents as to the novelty,

invention, and utility of said improvement, there were issued to plaintiff, Stoodo Company, a California [7] corporation, under date of May 5, 1931, in due compliance with the statutes in such cases made and provided, Letters Patent of the United States No. 1,803,875, whereby there was granted to the plaintiff, Stoodo Company, its successors or assigns, for the term of seventeen years from the 5th day of May, 1931, the full and exclusive right of making, using, and vending said invention throughout the United States and the territories thereof as by the original of said Letters Patent or a duly certified copy thereof will more fully appear. Plaintiff hereby makes profert of the original of said Letters Patent or a duly certified copy thereof and of the assignment mentioned herein.

## 7.

Plaintiff further states that by virtue of the premises aforesaid, it has now become and now is the sole owner of the entire right, title, and interest in and to said Letters Patent and of all rights and privileges granted and secured thereby and is entitled to sue for injunctive relief against any infringement thereof and to recover any profits and/or damages arising out of the infringement of said Letters Patent.

## 8.

Plaintiff further states that the said invention, as aforesaid, is of great utility and value, that welding rods which can be advantageously employed in carrying out or placing in effect the method of facing tools according to the invention of said Letters Patent have been sold by plaintiff in very large and constantly increasing quantities. That the invention covered by said Letters Patent is generally used by purchasers of plaintiff's welding rods and materials. That plaintiff has expended large sums of money for installing equipment for the manufacture of welding rods

which may be utilized in accordance with the invention of said Letters Patent [8] and has been and now is ready to supply the trade and public with welding rods and materials to be used in practicing the invention of said Letters Patent.

Plaintiff further states that plaintiff has spent large sums of money in advertising said invention and in advertising welding rods that may be advantageously employed in carrying out said invention. That plaintiff has also spent large sums of money in educating the trade in the use of said invention both by printed publication and by sending demonstrators into the fields where the invention is susceptible of being practiced.

9.

Plaintiff further states that the public has generally acquiesced in the usefulness of said improvement and has generally acknowledged and acquiesced in the rights of the plaintiff in respect to said invention and in the validity of said Letters Patent. Plaintiff has granted licenses under said Letters Patent to licensees enabling licensees to practice said invention upon the payment of royalty to the plaintiff and such licenses have been of great value to the plaintiff because of the royalty heretofore paid and which plaintiff expects to be paid in the future.

Plaintiff has also caused applications to be filed applying for foreign Letters Patent, to-wit: in Great Britain and in Canada; and has secured British Letters Patent No. 350,607, sealed September 3, 1931, and Canadian Letters Patent No. 323,762, issued June 28, 1932, upon the same invention; that such foreign Letters Patent are now in full force and effect.

That plaintiff has instituted suit upon said Letters Patent No. 1,803,875, in this Honorable Court, entitled "Stooddy Com-

pany vs. Mills Alloys, Inc., and Oscar L. Mills, in Equity [9] No. Y-101-J'', which cause of action was referred to Special Master David B. Head for trial upon the merits under a full and complete reference. That the said Special Master has rendered his final report upon such reference to the effect that the claims of the Letters Patent in suit there in issue were valid and infringed as per the copy of the Master's final report attached hereto. That the Master's final report has been approved by The Honorable William P. James over the exceptions of the defendant filed thereto as per the minute order dated June 11, 1935, a copy of which is attached hereto.

That but for the infringement complained of by plaintiff herein as having been committed by the defendant and of a limited number of others, some of whom have already acquiesced in the rights of the plaintiff and in the validity of said Letters Patent, the plaintiff would still be in the undisturbed use and enjoyment of the exclusive privileges secured by said Letters Patent in suit and in receipt of large gains and profits from the same.

10.

That defendant has received actual notice of the Letters Patent in suit and has also received constructive notice by plaintiff's manufacturing and selling welding rods designed to be used in practicing the invention of said Letters Patent bearing the word "patented" and the number "1,803,875".

11.

That plaintiff has purposely withheld instituting the present suit against this defendant and also against a large number of other infringers until plaintiff had first secured an adjudication as to the validity of the Letters Patent in suit by bringing a



test suit against Mills Alloys, Inc., and Oscar L. Mills, it being plaintiff's intention not to bring vexatious litigation against a large number of infringers [10] until the validity of the Letters Patent in suit had been adjudicated good and valid in law.

## 12.

That prior to the commencement of this suit and since the granting of said Letters Patent the defendant herein named, well knowing the facts as herein set forth, has unlawfully infringed said Letters Patent against the will of the plaintiff and in violation of the plaintiff's rights; has been and now is infringing said Letters Patent within the Central Division of the Southern District of California, and elsewhere in the United States, and is threatening to continue to infringe said Letters Patent by making, using, and selling, and causing to be made, used, and sold within the Southern District of California and elsewhere in the United States welding rods and materials which when used are intended by the defendant to be used in accordance with the invention disclosed, described, and claimed in said Letters Patent; that the defendant herein in selling said welding rods and materials disclosed to and instructed purchasers of the welding rods and materials the manner of using them in accordance with the invention disclosed, described, and claimed in said Letters Patent, constituting a direct and contributory infringement thereof against plaintiff's will and without plaintiff's license or consent and notwithstanding notice given the defendant of said Letters Patent and of the infringement that the said defendant is threatening to continue and to increase such acts of infringement; that defendant is now supplying to its customers materials and welding rods with the intention and instruction that such materials and welding rods shall be used in

such a manner as to infringe upon said Letters Patent No. 1,803,875; that the infringing acts of the defendant have the effect of inducing others to infringe said Letters Patent and that by said infringing acts defendant has wrongfully [11] converted to itself trade and profits which plaintiff would otherwise have received and enjoyed, as to the amount of which plaintiff is uninformed and prays discovery, whereby plaintiff has been caused great and irreparable damage and injury and defendant will, if it is allowed to continue such infringement, further irreparably damage and injure the plaintiff, depreciate or destroy the value of exclusive rights to which the plaintiff is entitled under said Letters Patent, and deprive the plaintiff of the benefit and advantages thereof.

13.

That defendant, prior to the commencement of this suit and since the grant of said Letters Patent, has been manufacturing, using and selling a welding rod known as "Haystellite Composite Rod", consisting of a large number of fragments of tungsten carbide bound together by a metal of materially lower melting point which is softer than tungsten carbide. That such rods were manufactured and sold with the instruction and intention that they be used in such a manner as to infringe upon the Letters Patent in suit.

That recently and prior to the commencement of this suit the defendant has brought out upon the market a new style of rod under the name of "Tube Haystellite" consisting of a mild steel tube filled with fragments of tungsten carbide, which rod is a direct copy of plaintiff's rod as disclosed in the Letters Patent in suit all without the license or consent of Plaintiff and with the intention of more seriously competing with plaintiff's welding

rod business by having a rod of more attractive appearance which would appear more similar to plaintiff's welding rod and [12] which could be sold in greater competition with plaintiff's welding rod constituting a deliberate attempt on the part of the defendant to infringe upon the Letters Patent in suit and to appropriate to itself business that rightfully belongs to the plaintiff.

WHEREFORE, PLAINTIFF PRAYS:

I. For a decree adjudging plaintiff's aforesaid Letters Patent No. 1,803,875, dated May 5, 1931, are good and valid in law and are owned by the plaintiff and have been infringed by the defendant.

II. That the defendant, its directors, officers, associates, attorneys, clerks, servants, workmen, employees, and confederates, and each of them, may be perpetually enjoined and restrained by a writ of injunction issued out of and under the seal of This Honorable Court from directly or indirectly manufacturing, using, and/or selling and/or causing to be manufactured, used, and/or sold, and/or threatening to manufacture, use, and/or sell welding rods made in accordance with the invention and improvement or discovery of said Letters Patent No. 1,803,875, dated May 5, 1931, and/or from supplying to the trade ingredients or supplies from which welding rods embodying said invention can be manufactured, and/or from in any wise infringing upon said Letters Patent and/or contributing to the infringement of said Letters Patent by others and/or conspiring with others to so infringe said Letters Patent in any way whatsoever.

III. That a preliminary injunction be granted to the plaintiff against the defendant to the same purport, tenor, and effect as hereinbefore prayed for in regard to said perpetual injunction. [13]

IV. That the defendant be ordered and decreed to deliver to the plaintiff all of said infringing apparatus which it has in

its possession and/or under its control, and that such apparatus be destroyed and/or that the same be delivered to This Honorable Court to be impounded by This Honorable Court for such final decision as to the Court may seem just and proper.

V. That the defendant may be decreed to account to the plaintiff for all the gains, profits, and advantages realized by said defendant from its willful and unlawful use and practice of the invention in and by said Letters Patent, and in addition to said gains, profits and advantages to be so accounted for, the damages sustained by the plaintiff as a result of said infringement, and that the amount of damages for said infringement of said Letters Patent may, in view of the willful character of the infringement, be increased to the sum not exceeding three times the amount thereof as provided by law.

VI. That a writ of subpoena ad res may issue forthwith out of and under the seal of This Honorable Court directed to the defendant requiring him, by a day certain and under a certain penalty to appear and make full, true, and perfect answer to the bill of complaint herein and to stand to, perform, and abide by such further order, direction and decree, as may be made against them.

VII. That the defendant may be decreed to pay the costs, charges, and disbursements of this suit.

VIII. That the plaintiff may have such other and further relief in the premises as the equity of the case may require, and to the Court may seem meet and just.

STOODY COMPANY,

(Signed) By *WISTON F. STOODY*

FRED H. MILLER,

706 Central Bldg.,

Los Angeles. [14]



State of California,  
County of Los Angeles—ss.

WINSTON F. STOODY, being first duly sworn, deposes and says: that he is president of Stoodly Company, the plaintiff herein; that he has read the foregoing bill of complaint and knows the contents thereof and that the allegations made therein are true except those matters alleged upon information and belief and as to those matters he believes them to be true, and that the reason this bill of complaint is verified by affiant is that the plaintiff is a corporation.

(Signed) WINSTON F. STOODY

Subscribed and sworn to before me this 17 day of June, 1935.

[Seal]

FREDA R. PAULSON

Notary Public in and for the State of California, County of  
Los Angeles. [15]

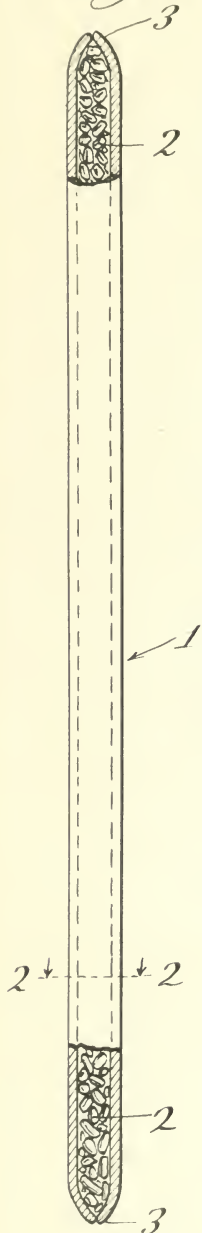




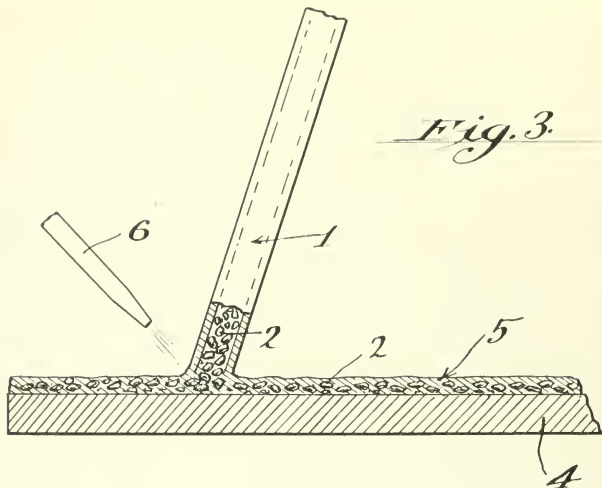
METHOD OF FACING TOOLS AND RESULTING PRODUCT

Filed Jan. 30, 1928

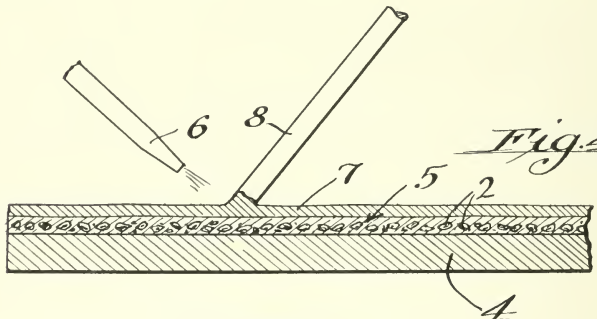
*Fig. 1*



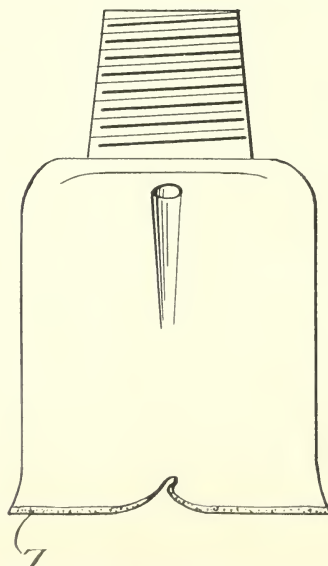
*Fig. 3*



*Fig. 4*



*Fig. 5*



Inventors  
W. F. Stoody  
S. M. Stoody  
N. W. Cole

by Hazard and Miller

# UNITED STATES PATENT OFFICE

WINSTON F. STOODY, SHELLEY M. STOODY, AND NORMAN W. COLE, OF WHITTIER, CALIFORNIA, ASSIGNORS TO STOODY COMPANY, OF WHITTIER, CALIFORNIA, A CORPORATION OF CALIFORNIA

## METHOD OF FACING TOOLS AND RESULTING PRODUCT

Application filed January 30, 1928. Serial No. 250,698.

Our invention relates to a method of facing tools and resulting product.

It is an object of this invention to face tools used for cutting, drilling or boring, with a layer of metal in which are embedded pieces or particles of an exceedingly tough and hard material of great wear-resisting properties.

Our invention consists in the method and resulting product hereinafter described and claimed.

In the accompanying drawings which form a part of this specification, we have illustrated the means and manner used in our invention, and in which,

Figure 1 is an elevation of a welding rod with parts in section used in our method.

Figure 2 is a cross section taken on the line 2—2 of Figure 1.

Figure 3 shows the depositing of the material of the welding rod on a tool to face the same.

Figure 4 shows the step of depositing the second layer of metal on the first deposited layer on the face of the tool.

Figure 5 shows a fish-tail bit such as used for drilling oil wells, the cutting surfaces of which have been faced with a layer of cutting metal deposited in accordance with our method.

Referring to the drawings, Fig. 1 shows a welding rod used in our method. The same consists of a tubular container 1, made of metal of a comparatively low melting point such as mild steel. The same is filled with pieces or particles 2 of an alloy or element of a considerably higher melting point than the mild steel of which the tube 1 is composed. The tube 1 is preferably pinched together at the ends, 3 so as to confine the particles or pieces 2 within the tube. Though any hard and tough alloy of a considerably higher melting point than mild steel may be used in place of the pieces or particles 2, we prefer to use a carbide of tungsten.

for welding rod, Serial No. 250,697, January 30, 1928 now Patent No. 1,751, dated May 6, 1930.

The tool to be faced with a layer of cutting, drilling or boring surface, is shown at 4. A layer of metal 5, in which the particles 2 are embedded, is deposited thereby melting the end of the welding rod by suitable means such as an acetylene torch indicated at 6. On the layer 5 shown in Fig. 4, we deposit a top layer 7 by melting a welding rod 8 by means of an acetylene torch or the like. The welding rod 8 is a hard steel having a higher melting point than mild steel 1, in which the particles 2 are embedded. We prefer to use hard tool steel such for example, as set forth in U. S. Patent No. 1,559,015 dated October 27, 1925.

The object of using a mild tool steel as a tube in the welding rod is to provide a bond or binder for the particles 2 of the hard metal which bond or binder is fusible at a temperature which will not cause the alloy to form gases or oxidize, which would result in fissures or blow-holes.

The mild tool steel forms a bond welded on to the face of the tool. The skin of the mild tool steel covering the particles will protect the same when the steel alloy is fused and deposited on top thereof. If hard tool steel were used as the tube in the welding rod, there would be danger of alloy particles being oxidized and forming blow-holes which are avoided by using a layer of mild steel which is of comparatively low fusing point.

The resulting cutting or drilling face of the tool is thus provided with an outer, hard and tough layer of tool steel, which, as it is worn down, exposes the still harder and tougher particles and pieces of alloy 2, which form an effective and durable cutting or drilling face of the tool.

While we prefer to deposit a second layer of hard tool steel on the first layer of



pieces of the harder material are imbedded.

Various changes may be made by those skilled in the art without departing from the spirit of our invention as claimed.

We claim:

A method of facing tools comprising fusing a layer of metal containing pieces of a metal having a greater melting point than the metal upon the face of a tool, and fusing a second layer of a metal on top of the first layer, said second layer having a melting point considerably higher than said first layer.

A method of facing tools, fusing a layer of mild steel containing particles of an alloy having a considerably higher melting point than said mild steel upon the face of a tool, and fusing a second layer of tool steel on said first layer.

A method of facing tools comprising fusing a layer of mild steel and containing particles of an alloy comprising tungsten and carbon on the face of the tool, and fusing a second layer of hard tool steel on said first layer.

A tool having an operating face comprising two fused layers, the first layer consisting of a metal of comparatively low melting point having embedded therein pieces of an alloy of a considerably higher melting point, and the second layer comprising tool steel.

The method of facing tools which comprises first associating together a metal of relatively low melting point and pieces of a hard substance of relatively high melting point, supplying heat to the associated mass to cause the metal of low melting point to melt and be deposited on the tool and carry with it the pieces of hard substance deposited thereon on the tool without materially changing their identity, causing a fusion to take place between the metal of low melting point and the metal of the tool, and allowing the metal of low melting point to cool and harden about the pieces and thus anchor them to the tool.

The method of facing tools which includes associating together a metal of relatively low melting point and pieces of a hard material of relatively high melting point, depositing the associated mass on a tool by an oxy-acetylene welding flame, causing a fusion to take place between the metal of low melting point and the metal of the tool, and allowing the metal to cool and harden about the hard material to anchor it in place without having melted the hard material to any material extent.

tool by an oxy-acetylene welding flame, causing a fusion to take place between the metal of low melting point and the metal of the tool, and allowing the metal to cool and harden about the tungstic material to anchor it in place without having melted the tungstic material to any material extent.

8. The method of facing tools which includes associating a tungstic material with a metal of relatively low melting point, simultaneously depositing the material and metal on a tool, as by welding, with a heat incapable of melting the tungstic material to any material extent, causing a fusion to take place between the metal of low melting point and the metal of the tool, and allowing the metal to cool and harden about the tungstic material and thus anchor the tungstic material in place.

9. The method of facing tools which includes associating a hard material of relatively high melting point with a metal of relatively low melting point, simultaneously depositing the hard material and metal on a tool, as by welding, with a heat incapable of melting the hard material to any material extent, causing a fusion to take place between the metal of low melting point and the metal of the tool, and allowing the metal to cool and harden about the hard material and thus anchor it in place.

10. The method of facing tools which includes associating pieces of an alloy containing tungsten and carbon with a metal of relatively low melting point, simultaneously depositing the alloy and metal on the tool, as by welding, with a heat incapable of melting the alloy to any material extent, causing a fusion to take place between the metal of low melting point and the metal of the tool, and allowing the metal to cool and harden about the alloy and thus anchor the alloy in place.

11. The method of facing tools which includes associating particles of an alloy containing tungsten and carbon which are of such size that they are incapable of being completely melted under a welding temperature with a metal of relatively low melting point, simultaneously depositing the particles and metal on a tool, as by welding, with a heat incapable of melting the particles to any material extent, causing a fusion to take place between the metal of low melting point and the metal of the tool, and allowing the metal to cool and harden about the particles and thus anchor them in place.

12. The method of applying hard metal particles to a surface to be protected thereby which comprises welding a material of low

between the material of low melting point and the material forming the surface, and allowing the molten material to cool and harden about the pieces of material of high melting point and thus fasten them to the surface to be protected.

13. The method of applying hard metal particles to a surface to be protected thereby which comprises associating together pieces of material of high melting point with a material of low melting point and welding the associated materials on the surface without melting or fusing the pieces of material of high melting point to any material extent, causing a fusion to take place between the material of low melting point and the material forming the surface, and allowing the molten material to cool and harden about the pieces of material of high melting point and thus fasten them to the surface to be protected.

14. The method of applying hard particles to a surface to be protected thereby which comprises inclosing pieces of material of high melting point in a material of low melting point and welding both materials on the surface without melting or fusing the pieces of material of high melting point to any material extent, causing a fusion to take place between the material of low melting point and the material forming the surface, and allowing the molten material to cool and harden about the pieces of material of high melting point and thus fasten them to the surface to be protected.

15. The method of applying hard particles or pieces to a surface to be protected thereby which comprises associating the particles or pieces with a material of relatively low melting point, depositing both materials on the surface as by welding, causing a fusion to take place between the material of low melting point and the material forming the surface, and allowing the molten material of low melting point to cool and harden about the particles or pieces and thus fasten them to the surface.

16. The method of applying hard particles to a surface to be protected thereby which comprises associating together pieces of material of high melting point with a material of low melting point, welding the associated materials on the surface without melting or fusing the pieces of material of high melting point to any material extent, allowing the molten material to cool and harden about the pieces of material of high melting point and thus fasten them to the surface to be protected, and coating the applied materials with a protecting coating of metal.

17. The method of applying hard particles to a surface to be protected thereby which

plying heat to the materials to melt the material of low melting point, and causing fusion to take place between the material of low melting point and the material forming the surface without melting or fusing the pieces of material of high melting point to any material extent, allowing the molten material to cool and harden about the pieces of material of high melting point and thus fasten them to the surface to be protected.

18. The method of forming a drilling cutting tool that includes, securing a cutting element to a cutter body by a fusible, comparatively tough material, and applying to the surface of the cutter body about said element a sheath of comparatively brittle material.

19. The method of forming a drilling cutting tool that includes securing a cutting element to a cutter body by a fusible, comparatively tough material, and covering said element and the surface of the cutter body with a sheath of comparatively brittle material.

20. The method of forming a drilling cutting tool that includes, applying a cutting element to a cutter body in a matrix of comparatively tough material, and covering said element and the surface of the cutter body with a sheath of comparatively brittle material, the last mentioned material being of greater hardness than the material forming the matrix.

21. The method of forming a drilling cutting tool that includes, applying a cutting element to a cutter body in a matrix of comparatively tough material, and covering said element and the surface of the cutter body with a sheath of comparatively brittle material, the materials forming the cutting element, sheath and matrix being respectively of decreasing hardness.

22. The method of forming a drilling cutting tool that includes studding a cutter body with cutting elements secured to said body in a fused matrix of comparatively tough material, and covering the studded surface of said body with a fused sheath of comparatively brittle material, the last mentioned material being of greater hardness than the material forming the matrix.

23. The method of forming a built-up cutter blade that includes studding the body along its edge with cutting elements secured to the blade in a fused matrix of comparatively tough material, and covering the studded face of the blade with a fused sheath of comparatively harder and brittle material.

24. A drill bit embodying a cutter body and a cutting element secured to said body

surface of the cutter body and embedding cutting element.

A drill bit embodying a cutter body provided with cutting elements, said elements being secured to the body in a fused matrix of comparatively tough material, and a fused layer of comparatively harder and brittle material covering the studded face of the

testimony whereof we have signed our names to this specification.

WINSTON F. STODY.

SHELLEY M. STODY.

NORMAN W. COLE.



In the District Court of the United States, Southern District  
of California, Central Division.

In Equity No. Y-101-J.

STOODY COMPANY, a corporation,

Plaintiff,

vs.

MILLS ALLOYS, INC., a corporation, et al.,

Defendants.

### INTERLOCUTORY DECREE.

This cause came on to be heard at this term upon exceptions of the defendants to the report of the Special Master filed herein, and the motion of the defendants to re-refer the cause to the Special Master for the purpose of taking additional testimony and making a further report, and oral arguments having been presented and points and authorities having been filed, and the Court having given full consideration to the defendants' exceptions and the said motion:

IT IS THEREFORE ORDERED, ADJUDGED AND DECREED as follows:

(1) That defendant's motion to re-refer the cause to the Master for the purpose of taking further testimony be and the same is hereby denied.

(2) That the defendants' exceptions to the report of the Special Master be and they are hereby overruled.

(3) That the findings of the Special Master be and they are hereby adopted as the findings of the Court.

(4) That Letters Patent No. 1,803,875, dated May 5, 1931, for method of facing tools and resultant product, being the Letters Patent in suit, are good and valid in law as to claims 5, 6, 7,

10, 11, 12, 13, 14, 15 and 17, thereof, and are owned by the plaintiff, and that defendants have contributed [19] to the infringement of said claims.

(5) That a writ of injunction issue out of and under the seal of this Court directed to the defendants perpetually enjoining and restraining the said defendants, Oscar L. Mills and Mills Alloys, Inc., its directors, officers, associates, attorneys, clerks, workmen and employees, and each of them, from directly or indirectly manufacturing, using or selling welding rods, such as Plaintiff's Exhibit #15 herein, with the intention that such welding rods be used within the United States of America, or its territorial possessions, in the practice of the process described in said claims 5, 6, 7, 10, 11, 12, 13, 14, 15 and 17 of said Letters Patent, and from in any wise infringing said claims of said Letters Patent or contributing to the infringement thereof.

(6) That David B. Head is hereby appointed Special Master for the purpose of an accounting to report his recommendations to this Court as to the amount of plaintiff's damages and the gains or profits made by the defendant, Mills Alloys, Inc., by reason of such infringement. In accordance with the findings, the question of whether there is any personal liability of the defendant Oscar L. Mills is reserved for the accounting.

(7) That the plaintiff recover of the defendants its costs and disbursements herein in the sum of \$.....

(8) Exception is allowed as to each of the orders herein as to defendants, and each of them.

DATED this 18 day of June, 1935.

(Signed) WM. P. JAMES,

United States District Judge.

Approved as provided in Rule 44.

JOHN FLAM &

PHILLIP GRAY SMITH. [20]

[Title of Cause.]

MINUTE ORDER.

The issues in this cause were heretofore referred to a Special Master with instructions to hear the evidence offered by the parties, make up his conclusions of fact and recommend to the court what decree should be entered herein, the law applicable being considered; and after hearing in accordance with the order of reference the Master duly made his report recommending a decree in favor of the plaintiff as to specified claims of plaintiff's patent designated in his report; and thereafter the defendants filed exceptions to the Master's report, and at the same time presented a motion asking the court to re-refer the cause to the Master for the purpose of taking further testimony; and the matter of said exceptions and said motion having been argued to the court both by oral argument and the filing of points and authorities; and now, after fully considering the argument so made, and the report of the Master and the record of the hearing before that officer, the Court concludes that the report should be approved and the exceptions thereto overruled. Further, that the motion to reopen the cause for the taking of further testimony should be denied. IT IS THEREFORE ORDERED that the exceptions to the report of the Special Master be and they are overruled; the findings of [21] the Master are adopted as the findings of the Court, and the motion to reopen the cause for the taking of further testimony is denied. An exception in favor of defendants is noted to the making of this order. Decree will be prepared accordingly, which decree shall provide for a further reference to the same

Master for the purpose of an accounting to ascertain the amount of plaintiff's damages.

(Entered on Judge James' Minutes June 11, 1935.)

Copies mailed to:

CHARLES C. MONTGOMERY, Esq., and  
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810 Title Guarantee Building,  
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JOHN FLAM, Esq., and

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1224 Security Title Insurance Bldg.,  
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DAVID B. HEAD, Esq.,

Federal Building,

Los Angeles, California. [22]

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[Title of Court and Cause.]

#### REPORT OF SPECIAL MASTER.

To the Honorable Judges of the United States District Court,  
Southern District of California, Central Division:

The undersigned, DAVID B. HEAD, to whom the above entitled cause was referred by an order entered herein on January 30, 1934, directing him to take and hear the evidence offered by the parties, to make findings of fact and conclusions of law and to recommend the judgment to be entered, herewith submits his report:

The cause was set down for the taking of testimony. On March 12, 1934 the following appearances were made: for the plaintiff, Fred H. Miller, Esq. and Charles C. Montgomery, Esq., for the defendants, John Fram, Esq. and Philip Gray Smith, Esq. Testimony was taken from day to day. On April



3, all parties rested. On April 13 the case was argued and submitted.

The action is in equity by the Stoodly Company, as assignee, prior to issue, of Letters Patent No. 1,803,875, for the alleged infringement of said letters patent by the defendants. The defendants deny infringement and rely upon several defenses attacking the validity of the patent and the further defense that the issues herein are *res adjudicata* by reason of the decree in a prior suit, No. R-94-M in this court. The defendants contend that the patent in suit is [23] invalid (1) in that the disclosure thereof was anticipated by several prior patents and publications, (2) in that the process of the patent was not first invented by the plaintiff's assignors but was in fact the invention of others, (3) in that the invention was used publicly by several others prior to the alleged invention of plaintiff's assignors, (4) in that no inventive faculty was exercised, (5) in that the claims relied upon are too broad.

The general field of this inquiry has been considered previously in this court in the case of *Stoodly Company vs. Mills Alloy, Inc., et al*, R-94-M, and by the Circuit Court of Appeals in the same case, 67 F (2d) 807.

The method of the patent relates to the facing of tools, particularly those used for the drilling of oil wells. A mild steel tube of low melting point is filled with particles of a substance of high melting point. Tungsten carbide is preferred for the substance of high melting point. The tube is then melted by the flame of an oxy-acetylene torch and deposited on the cutting surface of the tool as shown in Figure 3 of the patent drawings. The tungsten carbide particles are not affected by the heat of the torch. As the steel fuses and flows into the weld the tungsten carbide particles are carried with it. When the steel solidifies the tungsten carbide is found distributed throughout the

steel as discrete particles. When the tool is used these hard particles as they are exposed by wear, become a part of the cutting face of the tool.

The purpose of using mild steel for the tube is stated in the patent, page 1, lines 69 to 75,

“The object of using a mild tool steel as the tube in the welding rod is to provide a bond or binder for the particles 2 of the hard alloy which bond or binder is fusible at a temperature which will not cause the alloy to form gases or oxidize, which would result in fissures or blow-holes.” [24]

The patent describes the application of a second facing of hard alloy. No claims covering this second facing are in issue.

### DEVELOPMENT.

The applicants Winston F. Stooddy and Shelley M. Stooddy as officers and employees of the plaintiff company were engaged in 1926 in the development, manufacture and sale of welding rods for use in hard facing of oil well tools. Some testimony was taken concerning experiments made in 1926 by the Stoodys which need not be gone into. Immediately after Christmas, 1926, Normal W. Cole was employed by the Stooddy Company as a chemist and metallurgist. On February 19, 1927, Frederick Stone of the Stone Drill Corporation went to the office of the Stooddy Company and displayed to the Stoodys two pieces of metal known as Thoran and an article in Engineering and Mining Journal (Exhibit A). Thereafter Cole made an analysis of the material and determined that it was tungsten carbide. The Stoodys and Cole set about to duplicate this material. Within a few days they were able to produce a small quantity of tungsten carbide. They proceeded rapidly to produce the

material in commercial quantities. The first was sold to Stone. It was in the form of a round stick  $3/16$  inch in diameter and  $1\frac{1}{2}$  to 2 inches in length. It was given the trade name of Borium. Smaller pieces were marketed as pea Borium (Exhibit 25). The application of these materials will be considered later.

Sometime prior to June, 1927, Shelley Stoodly had learned that tungsten carbide was not appreciably affected by the heat of the acetylene torch. Under the direction of the Stoodys several experiments were conducted by Cole in an effort to combine tungsten carbide particles with other materials in a welding rod. None of these experiments resulted in a useful rod. [25] It has been satisfactorily established that during the latter half of June, 1927, a rod containing tungsten carbide particles enclosed in a mild steel tube was made in the Stoodly plant and that this rod was used to face a so-called Zubelin bit. The material was applied by a welder using an acetylene torch by causing the torch to melt the steel tube and carry with it the tungsten carbide particles into the weld. The tungsten carbide particles were not affected by the heat of the torch and were embedded in mild steel after it solidified on the face of the bit. This Zubelin bit was run successfully in a well and afterwards returned to the Stoodly plant.

This was the first successful use of the method of the patent and for the purpose of this case may be considered as the date of the invention.

### THE PRIOR ART.

Prior to the use of the method of the patent drilling tools were faced with hard materials in several ways. One method was to weld a layer of a hard homogeneous alloy such as stellite or stoodite. The material was cast in rod form and deposited

by welding with the electric arc or acetylene torch. Other rods of composite materials were designed for the same use with the exception that the materials formed an alloy when fused during deposition. The Mills Oxite rod is an example.

This rod was made in the form illustrated in Figure 3 of the Mills patent, Exhibit H-1. A mixture of tungsten, ferro-tungsten and other materials in powdered form was placed in a mild steel tube and baked several hours at a red heat. It was intended that the rod be used with an acetylene torch to produce a homogeneous alloy in the resulting weld. At times the weld produced was rough in appearance due to the failure [26] of all the material to fuse under the heat of the torch. The materials forming the unfused portions of the weld have not been identified. No embedding of hard particles was either intended or appreciably accomplished. The use of the Oxite rod did not anticipate the method of the patent. In the decision of the Patent Office in the interference which will be referred to hereafter the Mills Oxite rod is thoroughly and carefully considered.

For drilling in hard formations, black diamonds had been used for many years. They were set in the face of the tool by drilling a hole of approximately the size of a stone and carefully caulking the diamond in the hole. Late in 1925 Frederick Stone of the Stone Drill Corporation (which need not be distinguished from the Diamond Drill Contracting Company or the Doheny Stone Drill Corporation) obtained a material known as Thoran which was made in Germany. (See contemporary article in *Iron Age* July 16, 1925, page 151, Exhibit H-33). Stone used this material as a substitute for diamonds. His diamond setters caulked pieces of Thoran into the face of the tool in the same manner as they had been accustomed to use diamonds. It was a sample of this material that he took with



him on his visit to the Stoodly plant in February 1927. At the Stone plant Thoran was fixed in drilled holes by flowing molten solder, brass, silver, stellite and other material around the pieces after they were placed in the holes. In this operation the flame of the welding torch was kept away from the Thoran as much as possible from fear of damage to the Thoran. These operations were performed prior to the Stoodys first work with tungsten carbide.

Several of the prior uses pleaded relate to the so called hot rod method. There are distinct issues of fact presented as to the origin of this method. It has now become a *a* [27] standard method of applying the larger sized pieces of tungsten carbide. In this method the welder uses tungsten carbide particles, usually of pea size, an acetylene torch and a mild steel welding rod. He uses the torch to bring the tool surface to a molten state. He then heats the welding rod until the end is molten and then presses the molten end of the rod down on a piece of tungsten carbide causing the piece to adhere to the rod. He then transfers the rod to the tool face and with the torch melts off the end portion of the rod together with the tungsten carbide particle. Sufficient steel is melted off to form a matrix around the tungsten carbide. This is repeated until a sufficient number of pieces have been set on the tool face. The resulting weld is illustrated by Exhibit 55. If small particles are used, several may be picked up at the same time.

The evidence establishes that Shelley Stoodly and other workers in the Stoodly plant were applying pieces of Borium by the use of the hot rod method prior to the work on the Zubelin bit in June of 1927. The defendants have offered evidence of several alleged prior uses of the hot rod method. They have also

pleaded in effect that these alleged uses were prior inventions by certain ones of the users.

1. Use by Charles A. Dean at Coalinga, California.

As to this use it is found that Charles A. Dean who operated a welding shop in Coalinga, California, welded hard surfacing material over pieces of Thoran metal which had been previously set in drilled holes in core bits. These pieces were set in the same manner as black diamonds. It is found that it is not true that Dean used the hot rod method in setting small pieces on bits or tools. The work that Dean did was on core bits of the Diamond Drill Contracting Company during a period from the spring of 1926 until the winter of 1926-1927 [28]

2. Use by Charles Sulzer and others near Thompson, Utah.

Evidence was offered tending to show the use in November 1926 of the hot rod method in applying pieces of hard material to bits. The work was being done on a well being drilled near Thompson, Utah, by Charles Sulzer as foreman using tools supplied by the Stone Drill Corporation. The evidence is not sufficient to establish this alleged use.

3. Use by Roland O. Picken and others at Los Cerritos Field and Los Angeles, California.

Evidence was offered tending to proof that Picken welded a piece of Thoran on the edge of a fish tail bit and that the bit was run in a well at Los Cerritos on January 7, 1926. This evidence was rebutted to the extent that it is found that no such use was made.

4. Use by Frederick Stone and others at the Stone Drill Corporation plant at Glendale, California.

Frederick Stone was the active manager of the Diamond Drill Contracting Company which was succeeded by the Stone Drill

Corporation. The period of time in question is from the fall of 1925 to the summer of 1927. Irwin Mayer was the shop superintendent at the Stone plant in Glendale. William De Long was a welder and welding shop foreman in the Stone plant.

The testimony of the defendant's witnesses was to the effect that Stone first obtained Thoran from Shaffner and Allen, the New York representatives of the German manufacturers in 1924 and that it was first set in the same manner as black diamonds. Later the Thoran pieces were fixed in place in holes drilled in the tool by flowing bronze or other material around the pieces. The witnesses fix the first use of the hot rod method as of the fall and winter of 1926. Further testimony [29] is to the effect that Shelley Stoody first learned of the hot rod method while on a visit to the Stone plant in the year 1927. The witnesses fix the date of the first use of the hot rod method in reference to the refusal on the part of Shaffner and Allen to give credit for broken pieces of Thoran returned to them. This date is fixed by them as around April or May of 1926. However the correspondence between the Stone Drill Corporation and its predecessor and Shaffner and Allen unquestionably shows that the first Thoran was ordered in December of 1925, and that credit for small particles was refused by a letter written August 18, 1927. Reference is made to Exhibits 56, 57, 58, 59, 60, 61. It is evident that the recollection of these witnesses is in error to the extent of one year in time. They fix the visits of Shelley Stoody to the Stone plant by reference to the purchase of an electric arc welding machine. The invoice, Exhibit 41, shows that these visits must have occurred after May 10, 1927, rather than in the early part of the year. The mistakes as to these dates were honestly made by the witnesses, and the fact that they disclosed the means by which they fixed

the dates in question was ultimately of great assistance in ascertaining the true state of facts.

The conclusion is reached that there was no use of the hot rod method at the Stone plant prior to the use of that method by the Stoodys. It follows that there was no prior invention made by the alleged users at the Stone plant.

The use of the hot rod by Shelley Stoody and others in the Stoody plant did not constitute a prior public use. While it was still their own the Stoodys and Cole could use that knowledge in the further development of their ideas. *Eck vs. Kutz* 132 Fed. 758. *In re Peiler* 64 Fed. (2) 984.

It follows that the hot rod method was neither an anticipation or a part of the prior art insofar as the method [30] of the patent is concerned.

### THE PRIOR PUBLISHED ART.

The prior published art consists of United States and foreign patents and magazine articles.

Certain of the patents cited such as Mills 1,650,905, Exhibit H-1, and Jones 1,387,157, Exhibit H-3, illustrate the practice of combining various substances in a rod for the purpose of facilitating the use of the materials so combined in a weld. These patents were considered in the previous case, *R-94-M*. In that case these disclosures considerably influenced the conclusion of non-invention.

Other patents teach the use of abrasives by affixing pieces thereof in a matrix of metal. Boxley, Exhibit H-14, teaches the moulding of a matrix around a piece of hard abrasive such as carborundum. Marius, Exhibit H-18, Meyer's Exhibit H-24, and Chamberlin, Exhibit H-25, follow the same idea. The Austrian patent No. 6,804 contemplates the association of abrasives in



granular form by molding or compression. None of this group teaches a welding process.

Thorane was first described in this country in the July 16, 1925 issue of *The Iron Age*, Exhibit H-33. This article described its characteristics, giving its melting point as 5400° F. and its hardness 9.8 to 9.9 on the mineral scale. It stated that it could not be forged.

The German publication, "Gluckauf", in the issue of December 18, 1926, Exhibits H-24 and U, described the use of Volomit and Thorane for the facing of drill bits. It described the setting of stick of the material in holes in the tool and soldering them in place with brass or hard solder. There is no suggestion that the hard material and the brass or solder could be simultaneously deposited by welding.

The German patent No. 427,074, Exhibit V, is [31] directed to the introduction of tungsten carbide in granular form into other metals or alloys to increase their hardness. The patent states: "With some metals we find merely an embedding". The process consists of introducing tungsten carbide into a mass of molten metal. No mention is made of welding or a previous association of tungsten carbide with other materials.

The second Chesterfield patent, Exhibit H-16, relates to the casting of an alloy, containing crystals of tungsten carbide in such a manner that the crystals do not enter into solution but remain as such in the finished product. This is not a welding operation.

#### STOODY VS. MILLS, R-94-M, 67 F (2) 807

The defendants set up the decree in this case under their plea of *res adjudicata*. The action was between the same parties on a patent the claims of which read on the welding rod which



preferably is used in carrying out the process of the patent in suit. Claim 3 of the welding rod patent reads:

“3. A welding rod comprising a metal of comparatively low melting point and pieces of an alloy containing tungsten and carbon associated therewith.”

The master reported in that case that the patent was invalid for want of invention over the prior art. The report at lines 21 and 22, page 8, specifically points out that no process claims were involved.

One finding of fact in that case differs from a finding herein. In the first case a finding was made that the hot rod method was prior to the invention claimed. This finding resulted from a colloquy between counsel and the master. This colloquy is copied in Plaintiff Reply Argument to Defendants Objections to Plaintiff's Interrogatories found [32] in the file of this case. Although the remarks of plaintiff's counsel are equivocal the colloquy in effect resulted in a stipulation insofar as the issues in that case were concerned. Neither party should be bound by that stipulation in this action. The evidence in this case tends to further support the findings in the prior case as it appears that once the process of the patent was conceived the prior art was fully ready to provide the physical structure for combining the materials to be welded.

At the time the first case was tried the patent in suit had not issued. At that time the claims here in issue were in an interference in the Patent Office between the defendant Mills and the plaintiff's assignors. The defendant Mills had copied the claims in issue for the purpose of the interference. That interference was determined in the favor of the plaintiff's assignors. An appeal from that decision was dismissed. This

dismissal was incident to the proceedings in the instant case and should not be considered as adding to the effect of the decision of the Examiner of Interference (Exhibit 5). Plaintiff urges that this decision estops the defendants from asserting invalidity of the claims in issue. The law appears to be well settled that the interference does not constitute an estoppel.

However the defendants cannot with good grace now set up the decree in the case R-94-M as *res adjudicata* when they were contending in the Patent Office for the claims here in issue during all of the time that case was pending.

Defendants have cited cases such as Vapor etc. vs. Gold 7 F (2) 284 which are not in point. In that case it was held that plaintiff was estopped from setting up claims that could have been set up in a prior suit. The patent in suit had not issued at the time of the first case and obviously no cause of action had accrued. [33]

### COMMERCIAL SUCCESS.

The master observed certain demonstrations of the use of the hot rod method and the tube method of applying tungsten carbide. The tube method described in the patent results in a distinct saving in time and a better and more uniform product. Its use has become general in the oil tool industry. The plaintiffs have developed in a short time a large business in the sale of tungsten carbide in tubes under the trade name of Borium.

### VALIDITY.

In view of the state of the art at the time of the disclosure of the method of the patent it was not known that tungsten carbide and mild steel could be combined together and simultaneously deposited in a weld by the heat of an acetylene torch

to produce a weld in which the tungsten carbide particles would be held embedded in a matrix formed by the steel.

The inventors were at liberty to use their knowledge of the hot rod method in the further conception of the method of the patent. Once having that conception they were equally at liberty to draw upon the prior art for the means by which the materials to be welded could be associated together. That the physical structure of the tube used in carrying out their method was not an invention in itself does not detract from the merit of invention here claimed.

The issues herein go no further as to materials than the use of tungsten carbide and mild steel. The claims generally are broader. They are at least valid as reading upon the disclosure of the use of these two materials and it is not necessary in this case to venture an opinion as to the further scope of the claims.

The claims in issue are 5, 6, 7, 10, 11, 12, 13, [34] 14, 15, 17. Claim 5 is typical:

“5. The method of facing tools which comprises first associating together a metal of relatively low melting point and pieces of a hard substance of relatively high melting point, supplying heat to the associated mass to cause the metal of low melting point to melt and be deposited on the tool and carry with it the pieces of hard substance depositing them on the tool without materially changing their identity, causing a fusion to take place between the metal of low melting point and the metal of the tool, and allowing the metal of low melting point to cool and harden about the pieces and thus anchor them to the tool.”

Claim 10 evidently is drawn to specify tungsten carbide:

“10. The method of facing tools which includes associating pieces of an alloy containing tungsten and carbon with

a metal of relatively low melting point, simultaneously depositing the alloy and metal on the tool, as by welding, with a heat incapable of melting the alloy to any material extent, causing a fusion to take place between the metal of low melting point and the metal of the tool, and allowing the metal to cool and harden about the alloy and thus anchor the alloy in place.”

It is concluded that all of the claims in issue are valid.

### INFRINGEMENT.

The defendants are charged as contributory infringers. The defendant corporation, of which the defendant Mills is president and active manager, manufactures and sells welding rods consisting of a mild steel tube filled with particles of tungsten carbide. The defendants products is intended to be used and is used by the defendants customers in facing tools by the use of the method of the patent. It appears that the defendants welding rod can be used in no other way.

The evidence establishes specific use by William Bennett at the Alco Tool Company plant in Los Angeles between [35] June 1931 and December 1932. Bennett used the defendants tubes in accordance with the teachings of the patent. The defendant had knowledge of this use.

Defendants point out that the users of their welding rod do not perform the first step of the process, i. e., the associating of the two materials. However, the defendants place the materials in their hands with this step already performed and the association of the materials continues until further steps are taken. The claims are not happily worded in this respect, but not to the extent that defendants can avoid infringing them.



## WHEREFORE, IT IS CONCLUDED:

1. That this is an action in equity arising under the Patent Laws of the United States over which this court has jurisdiction.

2. That title to Letters Patent No. 1,803,875 is vested in the plaintiff.

3. That said Letters Patent and particularly claims 5, 6, 7, 10, 11, 12, 13, 14, 15 and 17 thereof, are good and valid in law.

4. That the defendants have contributed to the infringement of said Letters patent by their acts as herein found.

## RECOMMENDATION.

That a decree be entered in accordance with this report and that the defendants be enjoined from the acts herein found to contribute to the infringement of the Letters Patent in suit and that an accounting of profits and damages be had. The injunction may issue against the defendant Oscar L. Mills and the question of his personal liability in damages reserved for the accounting.

This report in the form of a draft was submitted [36] to counsel. Exceptions, objections and suggestions were filed by the defendants. Additional findings have been made on the issue of infringement. Amendments have been made in response to paragraphs II and V of the exceptions. In other respects the report is filed as drafted.

Returned herewith is the file in the case together with the exhibits, transcript and papers relating to the proceedings on reference.

Respectfully submitted,

(Signed) DAVID B. HEAD.

[Endorsed]: Filed Jun. 18, 1935. [37]



In the United States District Court, Southern District of California, Central Division

In Equity On Letters Patent No. 1,803,875,

Issued May 5, 1921. Eq. 690-J.

STOODDY COMPANY, a corporation,

Plaintiff,

vs.

HAYNES STELLITE COMPANY, a corporation,

Defendant.

### ORDER TO SHOW CAUSE.

On motion of plaintiff's counsel, Fred H. Miller, and upon verified Bill of Complaint filed herein and the affidavits attached hereto, it is ORDERED that the defendant show cause, if any there be, before this Court on July 1, 1935 at the hour of 10 A. M. of said day, or as soon thereafter as counsel can be heard:

Why a preliminary injunction should not be issued against said defendant, enjoining it, its directors, officers, associates, clerks, servants, workmen, employees and confederates, and each of them, from directly or indirectly manufacturing, using and/or selling, and/or causing to be manufactured, used and/or sold, and/or threatening to manufacture, use and/or sell Haystellite Composite Rod and Tube Haystellite made in accordance with the invention and improvement or discovery of Letters Patent No. 1,803,875, dated May 5, 1931, and/or from supplying to the trade ingredients or supplies from which welding rods embodying said invention can be manufactured and/or from in any wise infringing upon said letters patent and/or contributing to the infringement of said letters patent by others, and/or conspir-

ing with others to so infringe said letters patent in any way whatsoever. [38]

And it is further ORDERED that the defendant shall have up to and including the 26 day of June, 1935, in which to file reply affidavits, and that the plaintiff shall have up to and including the 1 day of July, 1935, in which to file rebuttal affidavits.

It is further ORDERED that the physical exhibits referred to in the affidavit of Walter Schumert as having been given to plaintiff's counsel, Fred H. Miller, Esq. be held open to inspection of the defendant during all reasonable business hours until such time as hearing may be had upon this order.

(Signed) WM. P. JAMES,

United States District Judge.

[Endorsed]: Filed Jun. 19, 1935. [39]

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[Title of Court and Cause.]

ORDER.

It appearing that subpoena ad res and copy of plaintiff's motion for a temporary injunction and the order of this Court thereon were not served upon defendant until June 24, 1935, and it being represented to the Court that the defendant, Indiana corporation, has no officer within the state and there is not time for the transmission of copies of said bill of complaint, etc. to said defendant to enable it to prepare a showing in opposition to said motion and serve the same in accordance with the said order of this Court, now, upon motion of Gibson, Dunn & Crutcher and Lyon & Lyon, appearing upon behalf of defendant,

IT IS ORDERED that said order, insofar as it requires defendant to serve and file reply affidavits in opposition to said

motion for preliminary injunction on or before June 26, 1935, is vacated and set aside and any question of continuance of the hearing of said motion for temporary injunction shall be considered upon July 1, 1935.

Dated, Los Angeles, California, June 26, 1935.

(Signed) WM. P. JAMES

District Judge. [40]

[Endorsed]: Filed Jun. 26, 1935. [41]

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[Title of Court and Cause.]

AFFIDAVIT.

State of New York

County of New York—ss.

CHARLES C. SCHEFFLER, being duly sworn, says that he is in charge of the Patent Department of the Haynes Stellite Company, defendant herein, and other affiliated companies of Union Carbide and Carbon Corporation;

On information and belief that the entire correspondence between the Stoodly Company, plaintiff herein, and the Haynes Stellite Company regarding plaintiff's patents is composed of the five letters dated January 31, 1931, June 24, 1931, June 29, 1931, September 9, 1931 and September 19, 1931, true copies of which are attached hereto and made a part hereof;

On information and belief that the originals of the letters received and the carbon copies of the letters written by defendant are in the company files and are not at the moment available.

That, knowing that the Circuit Court of Appeals of the Ninth Circuit had held plaintiff's patent 1,757,601 invalid in the case "then pending" (Stoodly Company v. Mills Alloys, Inc. et al.,

67 F. (2d) 807) and relying on the letter of September 19, 1931 from plaintiff's attorneys Hazzard & Miller, defendant believed itself entitled to regard the incident as closed and made no preparation for a defense on the merits. [42]

On information and belief that the first indication of a change of attitude on the part of plaintiff was received on or about June 24, 1935 when apparently the Order to Show Cause herein, returnable June 26th, was brought to the attention of a representative of defendant.

CHARLES C. SCHEFFLER

Subscribed and sworn to before me this 28th day of June, 1935.

[Seal]

ALBERT C. CORNELL

Notary Public.

Notary Public, Westchester County. Certificate Filed New York County No. 340. New York County Register's No. 6-C-182. Commission Expires March 30, 1936.

[Endorsed]: Filed Jul. 1, 1935. [43]

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“ C O P Y ”

HAZARD & MILLER

Attorneys and Counsellors

Patents and Patent Causes

Central Building

Los Angeles

January 31, 1931.

Haynes Stellite Co.,

Kokomo, Ind.

Gentlemen:

We write you on behalf of our client, Stooddy Company of Whittier, California, for whom we obtained U. S. Letters Patent No. 1,757,601, on a Welding Rod.



We are informed by our client that your concern is manufacturing, using and selling, a welding rod wherein pieces of tungsten carbide are held in rod like form by what appears to be mild steel or an equivalent material of lower melting point. While your rod apparently is not in the form of a tube in which the pieces of tungsten carbide are disposed, we wish to call your attention to claim 7 of the above patent which is not limited to the presence of the tube, and ask that you discontinue such infringement immediately and to account to our client for past infringement. We are enclosing a copy of this patent so that you may be fully advised as to its contents.

Our client has also wished us to call your attention to your advertisement on page 83 of the January issue of the Petroleum World. The disclosure which you make in this advertisement appears to solicit customers to purchase your product for the purpose of building up fish tail bits in such a manner as to infringe our client's patent No. 1,547,842. It is our client's position that such an advertisement on your part renders you a contributory infringer of this patent and we likewise ask that you immediately discontinue such further contributory infringement and account to our client for what has been done in the past. We regret that we are unable to supply you with a copy of this patent at this time.

Will you kindly advise us shortly as to your disposition in regard to these matters.

Yours very truly,  
HAZARD & MILLER  
(Signed) Per FRED H. MILLER

FHM\*MLH. [44]

“ C O P Y ”

June 24, 1931

Hazard &amp; Miller, Attys

Central Building

Los Angeles, California

Gentlemen:

Your letter of January 31, 1931, regarding Stooddy Company patents Nos. 1,547,842 and 1,757,601, has been referred to our patent attorneys.

After a careful consideration of the matter, they report that in their opinion we are not infringers, either direct or contributory, of any valid claim of either patent.

Very truly yours,  
(Signed) E. E. LeVAN

General Sales Manager

E.E.LeVan/CH

cc — Messrs. F. P. Gormely

C. C. Scheffler

W. A. Wissler. [45]

“ C O P Y ”

HAZARD &amp; MILLER

Attorneys and Counsellors

Patent and Patent Causes

Central Building

Los Angeles

June 29, 1931.

Haynes Stellite Company

Kokomo Indiana.

Attention—Mr. E. E. LeVan  
General Sales Manager.

Dear Sir:

We are in receipt of your letter of June 24th which is in response to our letter of January 31st concerning the Stooddy Company patents.

We do not have the benefit of the reasoning of your attorneys by which they arrive at the conclusion that you do not infringe in any way any valid claims of either patent and we cannot see how they can legitimately arrive at this conclusion.

Patent No. 1,757,601 has already been sued upon in this District and the trial has been had. We are at present awaiting decision of the case, which we trust will be in our client's favor.

Since we last wrote you, our client has also received patent No. 1,803,875, which has a close bearing upon patent No. 1,757,601. We are enclosing a copy herewith and ask that you discontinue infringement of this patent also. We would appreciate your acknowledging receipt so that we may establish notice to you of this patent as of this date.

Up until the present time our client has adopted the policy of refraining from bringing suit against other infringers of patent No. 1,757,601 until the Cause now pending has been decided. However, we are submitting your case to them for a possible change of policy. This is based upon the assumption that your attorneys after perusing this patent will likewise arrive at a similar conclusion, that you do not infringe any valid claim therein. We hope, however, that after investigating this patent that your attorneys will alter their opinion as to all three of the patents mentioned in our correspondence.

Yours very truly,

HAZARD & MILLER

(Signed) Per FRED H. MILLER

FHM/MLH. [46]

“ C O P Y ”

September 9, 1931

Hazard &amp; Miller, Attys.

Central Building

Los Angeles, Calif.

Gentlemen:

Att: Mr. Fred H. Miller

Your letter of June 29, 1931, in which you call our attention to an additional patent, No. 1,803,875, has been referred to our patent attorneys. They regard this patent as even weaker than its companion, No. 1,757,601; and advise us that we may disregard it insofar as our present and prospective products and practices are concerned.

Very truly yours,

(Signed) E. E. LeVAN

General Sales Manager.

E. E. LeVan/CH

cc — Messrs. F. P. Gormely

W. A. Wissler

C. C. Scheffler. [47]



“ C O P Y ”

HAZARD & MILLER  
Attorneys and Counsellors  
Patents and Patent Causes  
Central Building  
Los Angeles

Sept. 19, 1931

Haynes Stellite Company  
Kokomo, Indiana

Attention Mr. E. E. LeVan

Gentlemen:—

We have your letter of September 9th concerning our client's patent No. 1,803,875. In order that laches can in no way be imputed to our client, we wish to set forth our client's position.

We are at present awaiting a decision of an infringement suit based upon patent No. 1,757,601, of which you are undoubtedly aware as one of your employees was quite regular in attendance in the Court Room during the trial. In the event that the decision in this suit is to the effect that this patent is invalid it is, of course, the intention of our client to let the matter drop as it is neither our client's policy nor ours to harass competitors on an invalid patent.

On the other hand if the decision should be in our client's favor, establishing the validity of the patent, it is our client's intention to immediately proceed against all infringers. We trust that you will appreciate our client's position.

We merely wish to inform you of this so that although some time may elapse before this matter is brought to your attention further, no laches can be imputed to our client's delay in immediately proceeding.

Yours very truly,  
HAZARD & MILLER

(Signed) Per FRED H. MILLER [48]

[Title of Court and Cause.]

ANSWER.

To the Honorable the Judges of the United States District Court for the Southern District of California, Central Division:

The defendant above named answers the bill of complaint herein as follows:

1. Defendant is without knowledge save from the bill regarding the incorporation, existence and location of the plaintiff, as alleged in paragraph 1 of the bill.

2. Defendant admits the allegations of paragraph 2 of the bill.

3. Defendant admits that it has sold and intends to continue selling a welding rod known as "Haystellite Composite Rod" and a rod known as "Tube Haystellite" within the Southern District of California, Central Division, and elsewhere within the United States, but denies that it has committed, is now committing or is threatening to commit any acts of infringement as alleged in the bill.

4. Defendant denies infringement but admits each and every other allegation set forth in paragraph 4 of the bill.

5. Defendant admits that an application, Serial [49] No. 250,069, was filed by Winston F. Stooddy, Shelley M. Stooddy and Norman W. Cole in the United States Patent Office, January 30, 1928, and that United States Letters Patent No. 1,803,875 issued on May 5, 1931 to Stooddy Company of Whittier, California, a corporation of California, as assignee of said applicants, and purporting to be based on said application, but defendant is without information or knowledge save from the bill as to the assignment alleged in paragraph 6 of the bill, and

denies each and every other allegation set forth in paragraphs 5 and 6 of the bill.

6. Defendant denies that plaintiff is entitled to sue for injunctive relief against any infringement of said Letters Patent or to recover any profits and/or damages arising out of the alleged infringement thereof, and is without knowledge or information save from the bill of each and every other allegation set forth in paragraph 7 of the bill.

7. Defendant admits that welding rods can be employed in carrying out or placing in effect the method of facing tools purporting to be the invention of said Letters Patent, and that plaintiff has sold such welding rods, and that the alleged invention of said Letters Patent is generally used by purchasers of plaintiff's welding rods; denies that any invention contained in said Letters Patent is of great or any utility or value, and denies knowledge or information save from the bill as to each and every other allegation set forth in paragraph 8 of the bill.

8. Defendant denies that the public has generally acquiesced in the usefulness of any improvements invented by plaintiff's alleged assignors, or has generally acknowledged or acquiesced in the alleged rights of plaintiff or in the alleged validity of said Letters Patent, as alleged in paragraph 9 of the bill, but avers on the contrary that there has been infringement of said Letters Patent by a large number of [50] infringers, as alleged in paragraph 11 of the bill. Defendant is without knowledge or information whether plaintiff has granted licenses under said Letters Patent and as to whether such licensees are required to or do pay any royalty to plaintiff, and whether such licenses are of great or any value to plaintiff because of such alleged royalty, and as to any grounds for plaintiff's expectation to be

paid in the future. Defendant has no knowledge or information save from the bill as to plaintiff's alleged foreign applications and patents, and denies their materiality to the issues of this case. Defendant admits that plaintiff instituted suit upon said Letters Patent in this Court against Mills Alloys, Inc., and Oscar L. Mills, in Equity No. Y101-J, that said cause of action was referred to a special master, and that a report of said special master has been rendered, purporting to be upon the reference to him, to the effect that the claims of the Letters Patent in suit there in issue were valid and infringed, and that such report of the master has been approved by the Honorable William P. James over the exceptions of such defendants, but alleges that the time for an appeal from said decision to the United States Circuit Court of Appeals has not yet expired. Defendant denies each and every other allegation set forth in paragraph 9 of the bill.

9. Defendant denies each and every allegation set forth in paragraph 10 of the bill, except that defendant admits receiving on or about June 29, 1931 a letter from plaintiff's attorneys which stated that plaintiff "has also received patent No. 1,803,875", but did not charge defendant with infringing such patent.

10. Defendant admits that plaintiff has purposely withheld instituting the present suit against this defendant, and also against a large number of other alleged infringers, but denies that the cause for such delay was as alleged in paragraph 11 of the bill, and alleges on the contrary that plaintiff delayed and stated that it was delaying any such suit for the purpose of first obtaining an adjudication regarding the validity of plaintiff's Letters Patent No. 1,757,601 which have been held invalid by the United States Circuit Court of Appeals for the Ninth Cir-



cuit (opinion reported in 67 F. (2d) 807), and that plaintiff represented to defendant and to other alleged infringers that it would bring no suit upon the Letters Patent now in suit if said decision of the Circuit Court of Appeals for the Ninth Circuit resulted, as it did, in a holding that said Letters Patent No. 1,757,601 were invalid.

11. Defendant admits it has been and now is, within the Central Division of the Southern District of California and elsewhere within the United States, making and selling and causing to be made, used and sold within the Southern District of California and elsewhere within the United States, welding rods containing particles of Haystellite and intended by the defendant to be used in welding said Haystellite to drilling or cutting tools by means of an acetylene torch, which torch is the means used with welding rods publicly since long prior to the alleged invention of plaintiff's assignors and for more than two years prior to the application for the patent in suit; that the defendant in selling said welding rods disclosed to and instructed the purchasers of the welding rods that this was the nature and purpose of said rods; that said acts are against plaintiff's present will, and that defendant intends and has stated its intention of continuing said acts, but denies each and every other allegation set forth in paragraph 12 of the bill.

12. Defendant admits that prior to the commencement of this suit and since the grant of said Letters Patent, it has been manufacturing and selling a welding rod known as "Haystellite Composite Rod" consisting of a large number of [51] fragments of tungsten carbide bound together with a metal of materially lower melting point which is softer than tungsten carbide, and another rod under the name of "Tube Haystellite" consisting of a mild steel tube filled with fragments of tungsten carbide, and that

such rods were manufactured and sold with the intention and instruction that they be used as set forth in paragraph 11 of this answer; but defendant denies each and every other allegation set forth in paragraph 13 of the bill.

13. Defendant further answering said bill upon information and belief avers that the aforesaid Letters Patent No. 1,803,875 are and were at all times invalid and void on the following grounds among others:

(a) That the alleged inventors thereof were not the original, first and joint inventors and discoverers of the alleged method of facing tools and resulting product described and claimed in said Letters Patent, or of any material or substantial part thereof but that, on the contrary, long prior to the alleged invention or discovery by said alleged inventors and more than two years prior to their application for said Letters Patent, the said method and product and all material or substantial parts thereof were known or used by others in this country and were patented or described in printed publications in this and foreign countries, and were patented or caused to be patented by the alleged inventors or their legal representatives or assigns in foreign countries upon applications filed more than one year prior to the filing of said application for said Letters Patent in this country. The prior patents and publications referred to, in so far as at present ascertained, are as follows: [52]

UNITED STATES LETTERS PATENT

Number	Patentee	Date of Issue
215,840	Ludovic Taverdon	May 27, 1879
529,990	James W. Wyekoff et al	Nov. 27, 1894
604,569	August Villhelm Ringström	May 24, 1898
1,327,098	Daniel P. Kellogg et al	Jan. 6, 1920
1,387,157	Ernest Henry Jones	Aug. 9, 1921
1,572,349	John R. Chamberlin	Feb. 9, 1926
1,613,942	Richard D. Davies	Jan. 11, 1927
1,757,601	Winston F. Stoodly et al	May 6, 1930

FOREIGN LETTERS PATENT

French Patent No. 375,338	Rene Bouvier
Applied for—March 4, 1907	
Delivered May 11, 1907	
German Patent No. 427,074	Siemens & Halske Akt. Ges. in Berlin-Siemensstadt
Date—March 25, 1922	
Issued—March 23, 1926	

PUBLICATION

Page 151 of “The Iron Age”, a periodical published in the United States, July 16, 1925.

and many other patents and publications which defendant prays leave to insert in this answer by amendment as soon as discovered. The names and addresses of persons alleged to have invented or to have had prior knowledge of and used the method and product patented by said Letters Patent in suit within the United States are the following:

Frederick Stone of and at Glendale, California,  
William B. DeLong of and at Glendale, California,  
Irwin Mayer of and at Glendale, California.

and the patentees and assignees of said United States Letters Patent above listed and the author of said publication

above named at the addresses given therein and elsewhere within the United States, and others not at present ascertained but which defendant prays leave to insert in this answer by amendment when discovered.

(b) The alleged invention thereof does not constitute patentable invention, improvement or discovery within the meaning of the patent law in view of the prior [53] state of the art as disclosed in the various patents and publications hereinabove enumerated, and in view of what was common knowledge of those above named and others skilled in the art at the time of the alleged invention of the same by said alleged inventors.

(c) The description and disclosure of such alleged invention contained in said Letters Patent are not in such full, clear, concise and exact terms as to enable any person skilled in the art or science to which it pertains or to which it is most nearly connected to make, construct and use the same.

(d) The claims of said Letters Patent are vague, ambiguous and indefinite and fail particularly to point out and distinctly claim the part, improvement or combination claimed by the alleged inventors as their invention or discovery.

14. Defendant further avers that the alleged invention of said Letters Patent in suit was fully disclosed in a prior patent to the same alleged inventors and to the same assignee, namely, United States Letters Patent No. 1,757,601 for Welding Rod, patented May 6, 1930; that said Letters Patent No. 1,757,601 fail to claim the method and product disclosed in said patent and claimed in the Letters Patent in suit, and that the plaintiff and its alleged assignors thereby disclaimed and estopped themselves



to claim the alleged invention of the Letters Patent in suit, and abandoned the same.

15. Defendant avers that the Letters Patent in suit disclosed nothing but the method which would necessarily be used and the product which would necessarily result from the normal and expected use of the rod shown in said prior Letters Patent No. 1,757,601 as disclosed in said prior Letters Patent, and as well known and publicly used in the United States before the alleged invention of the Letters Patent in suit and more than two years prior to the filing of the application [54] therefor, and that the Letters Patent in suit are therefore invalid for want of invention.

16. Defendant avers that said prior Letters Patent No. 1,757,601 and Letters Patent in suit No. 1,803,875 contain one and the same alleged invention and were issued on different dates to the same alleged inventors and assignee; that the welding rod patented by said prior Letters Patent No. 1,757,601 has no utility except in using the method and producing the resulting product patented by the Letters Patent in suit; that the method and resulting product patented by the Letters Patent in suit cannot be followed or produced without the welding rod patented by said prior Letters Patent No. 1,757,601, and that the Letters Patent in suit being subsequent constitute double patenting and an attempted unlawful extension of the patent monopoly, and are therefore invalid.

17. Defendant avers that the Letters Patent in suit assert a claim to patent upon the welding rod of said prior Letters Patent No. 1,757,601, that said Letters Patent No. 1,757,601 have been held invalid by a decision of this Court affirmed by the Circuit Court of Appeals for the Ninth Circuit in *Stooddy Company vs. Mills Alloys, Inc.*, decided December 4, 1933 and re-

ported in 67 F. (2d) 807, and that neither plaintiff nor its assignors, as defendant is informed and believes, have filed any disclaimer of said invalid Letters Patent either in connection with the Letters Patent in suit or in connection with said prior Letters Patent No. 1,757,601; that the claim of invention asserted by the Letters Patent in suit is therefore excessive in breadth and in scope, and has not been cured within a reasonable time by disclaimer.

18. Defendant avers that if said Letters Patent be given a sufficiently broad interpretation to cover any article made, used or sold by defendant, then said patent is invalid and void in view of the prior state of the art and in view of the prior patents, uses and knowledge referred to in paragraph [55] 13(a) of this answer.

19. Defendant is informed and believes and therefore avers that plaintiff has sold welding rods of the type described in said Letters Patent No. 1,757,601 and has licensed, authorized and permitted the purchasers thereof to use the alleged inventions of the Letters Patent in suit without payment of any royalty to plaintiff for such use; that plaintiff has used and sought to use the Letters Patent in suit to obtain a monopoly in the welding rod of said prior and invalid Letters Patent No. 1,757,601, and has derived substantially its entire reward under the Letters Patent in suit from the sale of said welding rods which are not covered by any valid patent, and that plaintiff has thereby been guilty of unclean hands and such conduct as debars it from any right to enforce the Letters Patent in suit against this defendant or against the public generally.

20. Defendant further avers that plaintiff caused its attorneys on or about January 31, 1931 to give notice to defendant of

said prior Letters Patent No. 1,757,601 charging defendant with infringement of the same through sale of defendant's mild steel welding rod containing pieces of tungsten carbide; that defendant on June 24, 1931 denied that said acts constituted infringement of any valid claim of said Letters Patent No. 1,757,601; that plaintiff on or about June 29, 1931 caused its attorneys to write defendant mentioning Letters Patent in suit No. 1,803,875 without charging that defendant was infringing the same; that on September 9, 1931 defendant replied to plaintiff's attorneys stating that defendant's attorneys advised that defendant might disregard said Letters Patent in suit in so far as defendant's present and prospective products and practises were concerned; that on or about September 19, 1931 plaintiff caused its attorneys to send in reply to said letter of defendant a letter reading as follows: [55½]

“HAZARD & MILLER  
Attorneys and Counsellors  
Patents and Patent Causes  
Central Building  
Los Angeles

Sept. 19, 1931.

Haynes Stellite Company,  
Kokomo, Indiana.

Attention Mr. E. E. LeVan

Gentlemen:

We have your letter of September 9th concerning our client's patent No. 1,803,875. In order that laches can in no way be imputed to our client, we wish to set forth our client's position.

We are at present awaiting a decision of an infringement suit based upon patent No. 1,757,601, of which you are undoubtedly aware as one of your employees was quite regular in attendance in the Court Room during the trial. In the event that the decision in this suit is to the effect that this patent is invalid it is, of course, the intention of our client to let the matter drop as it is neither our client's policy nor ours to harass competitors on an invalid patent.

On the other hand if the decision should be in our client's favor, establishing the validity of the patent, it is our client's intention to immediately proceed against all infringers. We trust that you will appreciate our client's position.

We merely wish to inform you of this so that although some time may elapse before this matter is brought to your attention further, no laches can be imputed to our client's delay in immediately proceeding.

Yours very truly,

HAZARD & MILLER,

(Signed) Per Fred H. Miller."

By said letter plaintiff meant and was understood by defendant as meaning, that plaintiff was awaiting the decision in the suit brought by plaintiff against Mills Alloys, Inc., et al., and then pending in this Court, and that no suit would be brought against defendant on the Letters Patent in suit if said prior Letters Patent No. 1,757,601 were held invalid in said suit against Mills Alloys, Inc., et al.; that the defendant relied on said representation and meaning and continued the acts now alleged to infringe in said reliance and in the belief that said prior Letters Patent No. 1,757,601 would be held invalid; that said prior letters



Patent No. 1,757,601 were held invalid in said suit brought by plaintiff against Mills Alloys, Inc., et al., and such holding affirmed by the United States Circuit Court of Appeals for this Circuit [56] December 4, 1933; that in reliance thereon defendant has continued and developed its business in the sale of welding rods which is now alleged to infringe the Letters Patent in suit, and has invested large sums in such business; that the plaintiff has failed until after the filing of the bill of complaint herein to give any notice or warning that it desired to withdraw said representation or that it intended to sue this defendant for infringement of the Letters Patent in suit in spite of the decision holding said prior Letters Patent No. 1,757,601 invalid; that the present withdrawal of said representation and the enforcement of the Letters Patent in suit which the plaintiff seeks herein would cause the defendant great damage and injury and would destroy the business which the plaintiff has thus encouraged and permitted the defendant to develop, would result in the unjust enrichment of the plaintiff and gross inequity as between the parties, and that the plaintiff is thereby estopped to bring or prosecute the present suit or to interfere in any way under cover of the Letters Patent in suit with the defendant's said business, and the plaintiff is further debarred by its laches.

21. Defendant further avers that it has not at any time infringed or threatened to infringe any valid right of the plaintiff under the Letters Patent in suit, nor caused the plaintiff any damage or injury whatsoever, and that plaintiff has no right of action against defendant.

WHEREFORE DEFENDANT PRAYS that the bill of complaint herein be dismissed with costs to defendant, and for such

other and further relief as to the Court may seem just and proper.

HAYNES STELLITE COMPANY

By P. F. GORMELY.

Dated July 22, 1933.

LYON & LYON

Solicitors for Defendant.

L. A. WATSON

D. A. WOODCOCK

LEONARD S. LYON

Of Counsel. [57]

State of New York,  
County of New York.—ss.

P. F. Gormely, being first duly sworn, says that he is an officer, to wit the Vice-President, of HAYNES STELLITE COMPANY, the defendant herein, that he has read the foregoing answer and knows the contents thereof, and that the same is true to his knowledge except as to the matters therein stated to be alleged upon information and belief, and that as to those matters he believes it to be true, and that the means of his knowledge and the ground of his information and belief as alleged in said answer are his duties as such officer and his personal acquaintance with the business of the Company, its records and correspondence.

P. F. GORMELY (L.S.)

Subscribed and sworn to before me this 22nd day of July, 1935.

[Seal]

L. A. WAKEFIELD

Notary Public

Notary Public Bronx County, Bronx Co. Clk, No. 6, Reg. No.  
32W36 Cert. filed in N. Y. Co. No. 440 Reg. No. 6-W.250.  
Commission Expires March 30, 1936.

[Endorsed]: Filed Jul. 26, 1935. [58]

[Title of Court and Cause.]

NOTICE OF LODGMENT OF CONDENSED STATEMENT  
OF THE EVIDENCE UNDER EQUITY RULE 75.

To the above named Plaintiff, and to Messrs. Fred H. Miller  
and Charles C. Montgomery, its Attorneys:

The defendant herein having appealed from the Order for  
Preliminary Injunction entered herein on December 6, 1935,—

YOU AND EACH OF YOU ARE HEREBY NOTIFIED  
that the defendant has lodged with the Clerk of this Court the  
“Condensed Statement of Evidence” in the above entitled cause,  
pursuant to Equity Rule 75.

YOU ARE FURTHER NOTIFIED that the defendant by  
its attorneys will on the 16th day of January, 1936, at the hour  
of 9:30 o'clock A. M. of that day, in the chambers of the above  
entitled court, ask the Honorable Wm. P. James, Judge of said  
Court, to approve said Condensed Statement of Evidence, the  
same when approved to become a part of the record for the  
purposes of the appeal.

LYON & LYON

LEONARD S. LYON

HENRY S. RICHMOND

Attorneys for Defendant.

Dated this 6th day of January, 1936. [59]

[Endorsed]: Filed Jan. 6, 1936. [60]

[Title of Court and Cause.]

CONDENSED STATEMENT OF EVIDENCE UNDER  
EQUITY RULE 75.

Be It Remembered that heretofore, to wit: on Monday, July 29, 1935, the Order to Show Cause why preliminary injunction should not issue, in the above-entitled cause, came on regularly for hearing in the above-entitled Court and before the Honorable Wm. P. James. The plaintiff was represented by Charles C. Montgomery, Esq., and Fred H. Miller, Esq., and the defendant by Leonard S. Lyon, Esq., and Henry S. Richmond, Esq.

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WINSTON F. STOODY,

furnishing an affidavit on behalf of the plaintiff, deposed as follows:—

That he is president of Stooddy Company, the plaintiff herein, and that he is one of the joint patentees of United States Letters Patent No. 1,803,875, the Letters Patent in suit. He has read the accompanying affidavit of Walter Schumert and has inspected the welding rods purchased by Walter Schumert and the weld made therefrom. That the welding rod purchased by Walter Schumert consists of a steel tube filled with particles consisting principally of tungsten carbide and that, of affiant's own knowledge, these welding rods are being sold and are being used by the trade [61] for the purpose of welding the rods onto well drilling bits and like tools wherein the metal of the tube fuses under the heat of the acetylene torch with the metal of the bit and the particles of tungsten carbide remain unaffected, or substantially so, and are embedded in the matrix formed by the metal of the tube. That the welding rods manufactured and sold by the defendant are the same as those that were being manu-



(Deposition of Winston F. Stooddy.)

factured and sold by Mills Alloys, Inc., and Oscar L. Mills, which formed the basis of the suit "Stooddy Company vs. Mills Alloys, Inc., and Oscar L. Mills, in equity No. Y-101-J". Not only are the welding rods of the same appearance as those that were being marketed by Mills Alloys, Inc., and Oscar L. Mills, even to the extent of having the ends of the rods painted red, but in addition thereto the rods produce the same character of weld or deposit on the bits. The rods of the defendant herein may be aptly characterized in the same way that the rods of Mills Alloys, Inc., were characterized by Special Master David B. Head in his final report in the case of Stooddy Company vs. Mills Alloys, Inc., et al, in equity Y-101-J, where he states under the heading of "Infringement":

"The defendants are charged as contributory infringers. The defendant corporation, of which the defendant Mills is president and active manager, manufactures and sells welding rods consisting of a mild steel tube filled with particles of tungsten carbide. The defendants' product is intended to be used and is used by the defendants' customers in facing tools by the use of the method of the patent. IT APPEARS THAT THE DEFENDANTS' WELDING ROD CAN BE USED IN NO OTHER WAY."

I am firmly convinced from a comparison of the defendants' welding rod purchased by Walter Schumert with welding rods of Mills Alloys, Inc., that the defendants' welding rod is just as much and is of the same character of infringement as the welding rod of Mills Alloys, Inc., which has already been adjudicated to be an infringement of the patent in suit.

Stooddy Company has been engaged in the manufacture and sale of tungsten carbide since March 1, 1927. The plaintiff has

(Deposition of Winston F. Stoody.)

been [62] engaged in the manufacture and sale of tungsten carbide in the form of peas and shapes and also in the form of welding rods forming the subject matter of this controversy.

In the early stages of our business of tungsten carbide more sales were made of pea and shaped tungsten carbide than with tubular welding rods forming the subject matter of this controversy. Stoody Company has expended large sums of money in placing demonstrators in the field to demonstrate to the trade the advantages of welding on tungsten carbide and particularly the advantages of using welding rods containing tungsten carbide. Stoody Company has also spent large sums of money in advertising, having published its own booklet entitled "Fusion Facts", which originally was published monthly but is now being published quarterly. These booklets contain references and disclosures in regard to the advantages of using welding rods which we market under the name of "Tube Borium". As a result of our activities in educating the trade to the use and advantages of welding rods containing tungsten carbide there has been a general change in the trade so that the major portion of the trade now prefers to use our welding rods, as demonstrated by the following table which has been prepared from the books of plaintiff, setting forth the pounds of pea or shaped tungsten carbide sold monthly and the price per pound, and the number of pounds of welding rods that have been sold monthly and the price per pound:

(Deposition of Winston F. Stooddy.)

BORIUM SALES

	Borium lbs. oz.	Price lb.	Tube lbs. oz.	Price lb.
1927				
June	10 oz.	\$320.00		
July				
August				
September	6			
October	31			
November	64			
December	77		6.8	\$240.00
[63]				
1928				
January	98		37	
February	133		16.12	
March	167	\$160.00	1.8	128.00
April	171		1	
May	135		11.10	
June	133		1.9	
July	79		13	
August	105			
September	870	50.00	12	40.00
October	2275		32	
November	1653		23	
December	2206	25.00	38	25.00
1929				
January	2356		27	
February	2889		1	
March	1719	12.00		12.00
April	2108		53	
May	3222		50	
June	2148		205	
July	2380		201	
August	1554	10.00	448	10.00
September	1873		375	
October	976	8.00	354	8.00
November	2498		1231	
December	3542		551	
[64]				

(Deposition of Winston F. Stooddy.)

BORIUM SALES

	Borium lbs. oz.	Price lb.	Tube lbs. oz.	Price lb.
1930				
January	2442		1280	
February	1564		518	
March	3285		606	
April	5481		1112	
May	1061		836	
June	2331		2013	
July	1778		1490	
August	1247		2502	
September	1975		1975	5.00
October	3682		2775	
November	2264		1844	
December	1832		2865	
1931				
January	1626		2695	
February	1528		2923	
March	1541		3519	
April	1484		1863	
May	2094		2418	
June	653		2331	
July	633		1034	
August	895		1286	
September	365		1519	
October	411		1171	
November	419		1727	
December	510		1204	
1932				
January	412		511	
February	395		1373	
March	425		909	
April	510		1275	
May	1221		1590	
June	302		1295	

[65]



(Deposition of Winston F. Stooddy.)

BORIUM SALES

	Borium lbs. oz.	Price lb.	Tube lbs. oz.	Price lb.
July	788		1797	
August	746		2079	
September	370		1228	
October	248		1812	
November	460		1514	
December	355		1093	
1933				
January	584		1535	
February	705		613	
March	698		995	
April	507		865	
May	627		1170	
June	1716		1220	
July	818		1547	
August	252		1355	
September	796		2700	
October	918		2498	
November	737		721	
December	1184		2999	
1934				
January	1047		1745	
February	1196	2/12/34—5.25 2/17/34—4.55	3441	2/12/34— 3.30 2/17/34— 2.97
March	3767		10579	
April	1381	4/28/34—7.50 & 8.00	4726	4/28/34— 5.00
May	1514		7461	
June	429		1055	
July	1349		1964	
August	641		2090	
September	653		2259	
October	775		1262	
November	1272		1580	
December	740		1550	

[66]

(Deposition of Winston F. Stooddy.)

## BORIUM SALES

	Borium	Price	Tube	Price
	lbs. oz.	lb.	lbs. oz.	lb.
1935				
January	514		2342	
February	1333		4267	
March	1254		2456	
April	1604		3795	
May	2002		2761	

After the plaintiff had placed on the market its welding rods, which were sold under the name of "Tube Borium", the defendant undertook to place upon the market a tube of welding rod such as that shown on page 12 of the Haynes Stellite catalog, a photostatic copy of which is attached to the affidavit of Walter Schumert. This rod is an infringement of plaintiff's patent, but has an unattractive appearance, and due to the unattractive appearance, insofar as I am aware, sales of this welding rod [67] have not amounted to such as to seriously interfere with plaintiff's business.

The defendant had its principal place of business in Indiana and Mills Alloys, Inc., and Oscar L. Mills offered more serious competition within the Southern District of California. Hence, plaintiff instituted suit promptly against Mills Alloys, Inc., and Oscar L. Mills as a test case to determine the validity of plaintiff's patent. The trial of such test case required over fifteen days of actual trial. As set forth in the affidavit of Walter Schumert, the defendant herein recently has elected to bring out on the market tubular welding rods filled with tungsten carbide pieces and I assume from this that the unattractive composite rod heretofore placed upon the market by defendant will shortly be entirely abandoned in preference to making a more direct copy

(Deposition of Winston F. Stoodly.)

of plaintiff's welding rod. This more direct type of competition is seriously injuring the plaintiff's business and to a greater extent than the composite rod heretofore marketed by the defendant.

I am informed that the defendant has conspired with some customers to require well drilling tool manufacturers to use only rods of the defendant's manufacture on well drilling tools. Not only does the plaintiff lose the benefit of such sales but where these requirements are insisted upon the manufacturer of the well drilling tool who may have heretofore been using plaintiff's tube borium is required to lay in a supply of defendant's welding rods with the result that he is caused to keep a stock of the defendant's welding rods on hand to supply such customers in addition to stocks of plaintiff's tube borium, which is preferred. I have personally been consulted by plaintiff's customers, who have explained this situation to me and who have explained that inasmuch as some users of well drilling bits have insisted upon using the defendant's products such customers will [68] have to discontinue using all tube Borium in that they cannot afford to keep stocks of both welding rods on hand to satisfy the requirements of particular customers. In this way, plaintiff is not only losing actual sales but in many instances is losing customers who are using the defendant's welding rods, not through preference but in order to satisfy requirements that the defendant has induced to be made. I am informed that plaintiff has no adequate remedy at law for such lost sales. I, therefore, believe that plaintiff's damage if the defendant's activities are allowed to continue will be irreparable.

## WALTER SCHUMERT,

furnishing an affidavit on behalf of plaintiff, deposed as follows:

I reside at 661 South Gerhart Street, Los Angeles, California, and I am employed by Stoodly Company, the plaintiff herein.

On April 20, 1935, I was requested by Mr. Avery Stewart of Stoodly Company to go to the place of business of Haynes Stellite Company, the defendant herein, and procure some tube Haystellite. The Haynes Stellite Company is listed in the Los Angeles telephone directory as having its place of business at 2305 East 52nd Street, Los Angeles, California, and I proceeded to this address on the morning of April 20, 1935. I found the building at this address partly occupied by Linde Air Products Co. I entered the door of the building and went to a counter which divided the room into two sections. An attendant approached and I informed him that I wanted to get a pound of tube Haystellite. He inquired about the size and on informing him that I wanted the size of particles in the tube to be about one-eighth inch in diameter he referred to a loose leaf notebook, read to me the sizes available, and when I selected a tube wherein the particles were capable of passing through a No. 4 screen and which would be caught on a No. 8 screen, he sold me .75 pound of this rod as disclosed [69] upon the attached shipment memorandum. At the time of this sale I inquired as to whether the tube contained anything inside except pure Haystellite and was assured by the attendant that that was all that it contained, namely: crushed particles of Haystellite.

On May 2, 1935, I again went to the same address and purchased two tubes of tube Haystellite. I was waited on by the same attendant who gave me at the time of sale the attached sales order No. L. 6599. I also inquired of the attendant as to whether he had any catalog showing the sizes and prices of tube



(Deposition of Walter Schumert.)

Haystellite. He then produced and gave to me a small folder entitled "Price List Effective March 15, 1935". On examining this list I found that tube Haystellite was listed but that the sizes of the particles of Haystellite in the tube were not given. I remarked to the attendant about this and he agreed that it did not, stating that tube Haystellite had not been out very long and that the attendant was selling it before his company had a chance to get out much advertising matter or catalogs. I then requested that he give me the sizes that were available and I marked them down on the margin of this sheet. At the time of this second sale we had some conversation in regard to the price and the attendant informed me that he had not charged me enough for the purchase that I made on April 20th but that he would not require me to pay the difference. I then inquired of the attendant as to what size welding tip should be used in using this rod. The attendant stated that he did not know as he had not seen any of this rod applied. He informed me that if I had any trouble with it he would send one of the Haynes Stellite Company salesmen over to see me who knew more about how to apply tube Haystellite. At the time of this sale, on May 2, 1935, I was given by the attendant a catalog entitled "Haynes Stellite Products in the Oil Fields". Photostatic copies of pages 12 and 13 [70] of this catalog are attached hereto.

On May 1, 1935, at the request of Mr. Avery Stewart of the Stoodly Company, I caused to be prepared comparative welds using one of the tubes of tube Haystellite that I purchased on April 20th and a tube of Stoodly Company's tube Borium containing particles of Borium of similar size. These welds were prepared by Mr. Malcolm Whaley, also an employee of Stoodly Company, but were made by him at my instructions and in my

(Deposition of Walter Schumert.)

presence. The remainder of the tube of tube Borium and of the tube Haystellite I have preserved and these have been given to Fred H. Miller, attorney for Stooddy Company, to be produced in court. The welds produced have been marked on their backs as follows: "Tube Borium 5.1.35 W" to indicate the weld that was made from the tube of tube Borium. The other weld has been marked "Haystellite 5.1.35 W" to indicate the weld that was made from one of the tubes of tube Haystellite that I purchased on April 20, 1935. After the welds were completed their surfaces were ground off against a grinding wheel to expose and show up discrete particles of hard metal embedded in a matrix. From my experience in connection with the manufacture, use, and sale of tungsten carbide, I am convinced that tube Haystellite is intended to be used in the same manner as Stooddy Company's tube Borium and is designed to accomplish substantially the same results. This is confirmed by the catalog reference on page 13, a photostatic copy of which is attached, where it is stated:

"When the rod is applied to the bit the Haystellite particles do not segregate, but spread uniformly over the surface to be protected. They form small sharp teeth that break up the cut and penetrate quickly and easily."

The two welds that were made, using tube Borium on one weld and tube Haystellite on the other, were made under identically the same conditions, every effort being made to produce true and comparative sample welds from the plaintiff's and defendant's welding rods. [71]

(Deposition of Walter Schumert.)

PRICE LIST  
HARD-FACING MATERIALS

Effective March 15, 1935

All prices are f.o.b. Kokomo, Indiana, or nearest warehouse  
and are subject to change without notice.

TERMS—net tenth of month following invoice.

HAYNES STELLITE WELDING ROD

Diameter of Rod	Length of Rod	Price per lb., lots of		
		1-49 lb.	50-99-lb.	100 lb.
3/8 in. ....	8 to 14 in.	\$3.75	\$3.45	\$3.25
5/16 in. ....	6 to 12 in.	3.75	3.50	3.35
1/4 in. ....	5 to 10 in.	4.00	3.75	3.60
3/16 in.* .....	4 to 8 in.	5.00	4.75	4.60
1/8 in.** .....	3 to 7 in.	7.00	6.75	6.60

\*Not available in Grade No. 12.

\*\*Not available in Grades No. 12 or No. 6.

Flux-coated rods for electric welding—5 cents per lb. extra.

HASCROME WELDING ROD

Diameter of Rod	Length of Rod	Price per lb., lots of	
		1-49 lb.	50 lb.
1/4 in. ....	18 and 36 in.	\$0.60	\$0.50
3/16 in. ....	18 and 36 in.	.65	.55

Flux-coated rods for electric welding—5 cents per lb. extra.

HAYSTELLITE INSERTS

Size	Price per lb., lots of		
	1-9 lb.	10-99 lb.	100 lb.
No. 0, 1, 6, 7, 8, 9 and 10.....	\$7.00	\$6.50	\$6.25
No. 2 and 3.....	7.50	7.00	6.75
No. 4 and 5.....	8.50	8.00	7.75

Prices for Haystellite products are based on combined poundage of Haystellite Inserts, Haystellite Composite Rod and Tube Haystellite.

(Deposition of Walter Schumert.)

## HAYSTELLITE COMPOSITE ROD

Type	Price per lb., lots of		
	1-9 lb.	10-99 lb.	100 lb.
No. 2 .....	\$7.00	\$6.50	\$6.25
L and R .....	5.50	5.25	5.00
N and U .....	5.25	5.00	4.75
No. 61, 62, 63 and 64—3/8 in. wide .....	5.00	4.75	4.50
No. 63 and 64—3/8 in. wide .....	5.25	5.00	4.75

## TUBE HAYSTELLITE

			Price per lb., lots of		
			1-9 lb.	10-99 lb.	100 lb.
4 on 8	Diameter of Tube				
8 on 16	3/8 in. ....		\$4.75	\$4.50	\$4.25
16 on 24	5/16 in. ....		4.75	4.50	4.25
24 on 36	1/4 in. ....		5.00	4.75	4.50
40 on 50	3/16 in. ....		5.25	5.00	4.75
100 on 200					

[72]



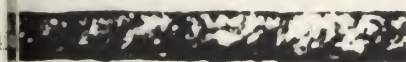
ite Composite Rod consists of hard, shaped particles of Tough grade Hay-tributed uniformly in a suitable bind-al. The Haystellite is crushed and insure uniformity in size and the rocessed in a manner that provides nd even distribution throughout the enable drillers to choose the right r; for every kind of formation, two aystellite Composite Rod are made, rs of either Oxxweld No. 1 High-Test aynes Stellite.

h-Test Steel binder results in a de- a has extreme toughness and high ngth. This binder is not as hard as

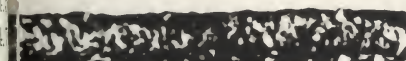


### Haystellite Composite Rod (New Style)

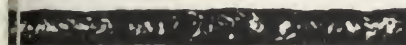
Type	Per Cent Crushed Haystellite	Per Cent Binder	Screen Size Crushed Haystellite	Binding Material
No. 61	60	40	4 on 8	Oxxweld No. 1 H.T
62	60	40	8 on 16	Oxxweld No. 1 H.T
63	60	40	16 on 24	Oxxweld No. 1 H.T
64	60	40	24 on 36	Oxxweld No. 1 H.T



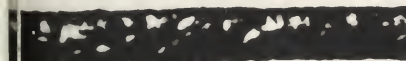
2



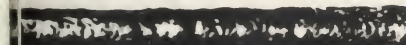
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N



R



U

### Haystellite Composite Rod (Original Style)

Per Cent Binder	Screen Size Crushed Haystellite	Binding Material
30	8 on 16	No. 6 Haynes Stellite
30	8 on 16	Oxxweld No. 1 H.T. Steel
40	16 on 24	Oxxweld No. 1 H.T. Steel
30	4 on 8	Oxxweld No. 1 H.T. Steel
40	24 on 36	Oxxweld No. 1 H.T. Steel

Haynes Stellite and will not resist abrasi the same high degree. It will wear away and the sharp grains of Haystellite will be jected more rapidly. This binder, on the hand, possesses the maximum resistanc shock and impact and should be selected great toughness is required. The Com Rods made with High-Test Steel binde the general purpose rods for use on oil drilling tools.

Haynes Stellite binder in Composite should be selected where hardness in the f is more essential than toughness. Haynes lite retains its hardness even at red heat possesses the greatest resistance to abrasi any hard-facing alloy. Haynes Stellite binder results in a slow, uniform projecti the grains of Haystellite as the tool away, because the Haynes Stellite itself r abrasion to a remarkable degree. This ty



en the grains as the bit wears away.  
 Haystellite Composite Rod combines the  
 qualities of these binders with the hardness,  
 strength and uniformity of crushed Haystel-  
 lite. When the rod is applied to the bit the  
 Haystellite particles do not segregate, but  
 are distributed uniformly over the surface to be pro-  
 duced. They form small sharp teeth that break  
 and cut and penetrate quickly and easily.  
 The result is long lived bits, faster drilling and  
 more bit-to-gauge hole per round trip.  
 Welders prefer the flat or new style  
 Haystellite Rod. These rods consist of flat strips  
 of Weld No. 1 High-Test Steel to which uni-  
 form sizes of crushed Haystellite have  
 been applied by a special process.

## HAYSTELLITE

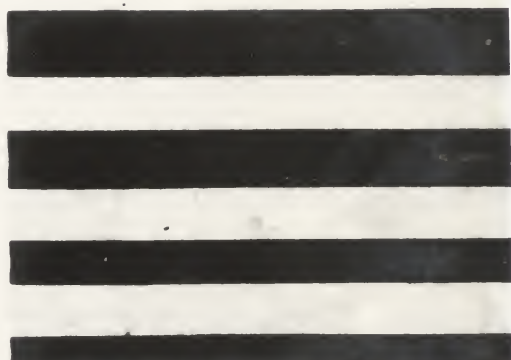
Haystellite consists of hard, irregular  
 particles of Hard grade Haystellite con-  
 tained in tubes made of Oxxweld No. 1 High-  
 Test Steel, the Haystellite being screened to  
 insure uniformity in size.

Hard grade Haystellite used in Tube  
 Haystellite is made with the same careful man-  
 ufacturing control as the Tough grade Inserts.  
 Hard grade is several points harder on  
 the Rockwell tester than the Tough grade. This  
 additional hardness is obtained at a sacrifice  
 of toughness. Thus the Hard grade Haystellite  
 does not possess the maximum hardness of all  
 Haystellite products, and therefore  
 has the greatest resistance to wear. This grade  
 is not so desirable in the form of inserts,  
 as such large pieces would lack the tough-  
 ness required to prevent chipping and breaking.  
 In the form of Tube Haystellite, however, the  
 large grains are so small, and are held in  
 place firmly by the High-Test steel binder,  
 that breakage is minimized. When a particle  
 wears off, a new sharp, hard cutting edge is  
 exposed which aids the hard-faced drilling  
 and penetrating the formation faster.

which the Hard grade Haystellite par-  
 ticles contained, furnish the binding material  
 and keep the grains in place on the hard-faced tube.  
 The steel is well known for its uniformity,  
 excellent welding qualities, and its tough  
 high strength. It produces an excellent  
 clean, sound deposit, and bonds very  
 well with the steel base metal and the par-  
 ticles of Haystellite, holding them rigidly.

Thus Tube Haystellite combines the  
 best quality products and provides a hard  
 material possessing unique wear-resist-  
 ance and great strength.

Tube Haystellite is available in 14-in-  
 ch diameters and screen sizes shown  
 in the table below. All sizes consist of approx-  
 imately 60 per cent Haystellite and 40 per cent  
 No. 1 High-Test Steel, by weight.



### Tube Haystellite

Diameter of Tube	Screen Size Crushed Haystellite	Diameter of Tube	
3/8 in.	4 on 8	1/4 in.	5
3/8 in.	6 on 10	1/4 in.	10
3/8 in.	8 on 16	3/16 in.	1
5/16 in.	8 on 16	3/16 in.	2
5/16 in.	16 on 24	3/16 in.	4
1/4 in.	16 on 24	3/16 in.	5
1/4 in.	24 on 36	3/16 in.	10
1/4 in.	40 on 50		







114 SANBOME STREET  
SAN FRANCISCO

WAREH  
LOS ANGELES  
SAN FRANCISCO



ORIGINATED AT

Sales Order No. L

### Show Executed

M. Schuertz  
661 S. Corhart  
Los Angeles, Calif.

one  
one  
one  
ash  
Will call

Date Shipped 5-2-35 Class LCT

QUANTITY ORDERED	DESCRIPTION	QUANTITY SHIPPED		UNIT PRICE
		No. Pieces	WEIGHT	
.834	3/8" Tube Haystacklite 4 on 2			16. 4.75
			Sales Tax	
	<p><i>See C.W.C.</i></p>			

EDJY

5

ABOVE MATERIAL RECEIVED

CUSTOMER'S NAME \_\_\_\_\_

### PACKING SLIP WITH GOODS



# THE LINDE AIR PRODUCTS COMPANY

UNIT OF UNION CARBIDE AND CARBON CORPORATION

UCC

SHIPMENT 1

SOURCE OF ORDER			CUSTOMER'S ORDER NO.	TERMS IF OTHER THAN CREDIT	DATE SHIPPED
PHONED BY	LETTER DATE	PURCHASE ORDER DATE			PLANT OR WARE NO.
			REQ. NO.		WGT.

CODE NUMBER PER TERMS CARD	
----------------------------	--

*L. Schumert*  
*661 - So. - Gerhart*  
*S. A.*

DRIVER TO COLLECT	
THIS SHIPMENT \$	
MSP \$	
\$	
COLLECTED ON PRIOR BILLS OR OTHER PRODUCTS	
FORM OF COLLECTION	
CURRENCY	CCW

PREPAID OR COLLECT	IF NOT O. T. OR T. T.	PREPAID CHARGES
--------------------	-----------------------	-----------------

NO. OF INVOICES	SHOW ORDER NO.	BILL OR CONT. FORM	SPECIAL BILLING INSTRUCTIONS
-----------------	----------------	--------------------	------------------------------

ART NUMBER	DESCRIPTION	QUANTITY		UNIT PRICE	EXTENSION	D. SCOUN	
		BACK ORDERED	ORDERED AND SHIPPED			%	AMOUNT
5	3/8 4 in x 1/2 in Hays T. H. I.				1.54		
	<i>sub. J. H.</i>				<i>54</i>		
					<i>1.63</i>		
<div style="text-align: center; font-size: 2em; font-family: cursive;"> <i>PAID</i>  <i>(initials)</i> </div>							

CUSTOMER	TOTAL AMOUNT COLLECTED FROM CUSTOMER \$	SIGNED THE LINDE AIR PRODUCTS COMPANY	BY
----------	---	---------------------------------------	----

B	E	B	E	B
A	R	A	R	A
W	G	W	G	W
	V		C	
LX	LJ	LJ	LR	LR

TOTAL CHARGES THIS SHIPMENT \$
AMOUNT PAID ON THIS SHIPMENT \$
OVER PAYMENT \$
UNDER PAYMENT \$
SALESMAN
JOBBER

SHIPMENTS AT DRIVER'S RISK WE TAKE RECEIPT FOR ALL SHIPMENTS IN GOOD ORDER AND ARE NOT RESPONSIBLE





## FRANCIS W. MAXSTADT,

furnishing an affidavit on behalf of the defendant, deposed as follows:

That he is a resident of the City of Pasadena, County of Los Angeles, State of California, and that he is by profession Assistant Professor of Electrical Engineering at the California Institute of Technology; that he is a graduate of Cornell University, and of the California Institute of Technology; that he received the degree of Mechanical Engineer at Cornell University, and subsequently the degrees of Master of Science and Doctor of Philosophy at the California Institute of Technology.

That for the past fifteen years affiant has studied intensively all forms of welding and has designed and built welding machines and practised the art of autogenous welding, both with the metallic electrode arc and the oxy-acetylene blowpipe. That he has since his connection with the California Institute of Technology instructed students in the art of welding both with the electric arc and the oxy-acetylene torch, and has instructed students in the building of apparatus to be used in both electric and oxy-acetylene welding. That during the past fifteen years he has also practised and used both the electric arc and the oxy-acetylene methods of welding.

Affiant further states that for at least fifteen years last preceding this date he has studied the patents affecting the lines of industry in which he has been interested, and in this connection, and also as a patentee, has become accustomed to the reading of patent specifications, drawings and claims and to interpret the same. He has, moreover, in connection with his work in designing equipment for welding by various methods, had frequent occasion to refer to the patent literature and to make searches through collections of patents for the purposes of determining the novelty and infringement of various patents.

(Deposition of Francis W. Maxstadt.)

Affiant further states that he has read the W. F. Stoodly, [77] et al. patent No. 1,803,875, the patent here in suit, and understands the same. This patent, entitled, "METHOD OF FACING TOOLS AND RESULTING PRODUCT", was granted May 5, 1931, on the joint application of Winston F. Stoodly, Shelley M. Stoodly, and Norman W. Cole, assignors to Stoodly Company, the plaintiff in this action.

The descriptive portion of the patent in suit is brief. It refers to an accompanying drawing which shows in Fig. 5 a fishtail bit faced with hard material by the method described in the patent; in Fig. 1, a welding rod adapted for use in the method; in Fig. 3, the manner of manipulating the welding rod to form the hard facing; and in Fig. 4 the manner of depositing a supplemental layer of metal upon the hard facing. The specification also refers to two other copending applications and to one issued patent. The welding rod itself, consisting preferably of a mild steel tube filled with particles of tungsten carbide, which is a hard material having a higher melting point than the mild steel of the tube, is stated to be described and claimed in one of the copending applications, Serial No. 250,699, which during the pendency of the patent in suit matured into Patent No. 1,757,601. Patent No. 1,757,601 was adjudicated and held invalid in *Stoodly vs. Mills*, 67 Fed. (2d) 807.

The patent in suit contains nothing describing the manner of applying the hard facing to the tool, except the single sentence (Spec., p. 1, lines 56-60) reading as follows:

"A layer of metal 5, in which the particles 2 are embedded, is deposited thereon by melting the end of the welding rod by any suitable means such as an acetylene torch indicated at 6."

(Deposition of Francis W. Maxstadt.)

It is also stated (p. 1, lines 76-77) :

“The mild tool steel forms a bond welded or fused on to the face of the tool.”

It has been common practice since prior to 1910 to make auto-  
[78] genous welds with a rod of mild steel or other metal, using an oxyacetylene blowpipe to supply the heat. In the method of the patent, the hard facing is applied by manipulations exactly similar to those which have been standard practice since prior to 1910. The flame is applied to the welding rod and to the surface onto which the metal is to be deposited, exactly as in the prior practice, and the metal of the rod is deposited dropwise as in the conventional procedure, the sole difference being that the hard infusible particles in the rod of the patent are carried by the mild steel to the surface of the tool being hard-faced. This result is inherent in the structure of the rod of the patent. It requires no new manipulations, and could be avoided only with difficulty, if at all, and then by a complete departure from the method universally used.

The claims define a method of associating together a material of low melting point and a material of high melting point, melting the lower melting point constituent and the tool surface by applying heat thus causing the two low melting point materials to weld or fuse together, later solidifying about the high melting point material which is in the form of grains or particles. The claims indicate that particles are not to be altered in character or identity but are to be anchored to the tool surface by the solidified lower melting point material.

Claims 5 and 10 of the patent in suit are typical, and read as follows:

(Deposition of Francis W. Maxstadt.)

“5. The method of facing tools which comprises first associating together a metal of relatively low melting point and pieces of a hard substance of relatively high melting point, supplying heat to the associated mass to cause the metal of low melting point to melt and be deposited on the tool and carry with it the pieces of hard substance depositing them on the tool without materially changing their identity, causing a fusion to take place between the metal of low melting point and the metal of the tool, and allowing the metal of low melting point to cool and harden about the pieces and thus anchor them to the tool.” [79]

“10. The method of facing tools which includes associating pieces of an alloy containing tungsten and carbon with a metal of relatively low melting point, simultaneously depositing the alloy and metal on the tool, as by welding, with a heat incapable of melting the alloy to any material extent, causing a fusion to take place between the metal of low melting point and the metal of the tool, and allowing the metal to cool and harden about the alloy and thus anchor the alloy in place.”

Claim 5 covers a method of facing tools which may be analyzed as follows:

(1) first associating together a metal of relatively low melting point and pieces of a hard substance of relatively high melting point,

(2) supplying heat to the associated mass to cause the metal of low melting point to melt and be deposited on the tool and carry with it the pieces of hard substance depositing them on the tool

(3) without materially changing their identity,



(Deposition of Francis W. Maxstadt.)

(4) causing a fusion to take place between the metal of low melting point and the metal of the tool, and

(5) allowing the metal of low melting point to cool and harden about the pieces and thus anchor them to the tool.

United States Letters Patent to Chamberlin No. 1,572,349, issued February 9, 1926, completely anticipates claim 5 of the patent in suit. It covers a method of facing tools. The specification of the Chamberlain patent discloses:

(1) first associating together a metal of relatively low melting point and pieces of a hard substance of relatively high melting point,

at lines 78-82, in the following words:

“To insure that the crystals will be at the cutting end of the bit, in another method of manufacture, the crystals are first packed into a capsule of readily fusible material, such as lead, zinc, etc.,”

The specification of the Chamberlin patent discloses:

(2) supplying heat to the associated mass to cause the metal of low melting point to melt and be deposited on the tool and carry with it the pieces of hard substance depositing them on the tool,

at lines 83-88, in the following words: [80]

“\* \* \* and in casting the bit in the mold, either by gravity or pressure, the heat of the cast metal will melt the capsule and the metal of the bit and capsule thereupon flows in around the crystals and binds them together in the end of the bit.”

The specification of the Chamberlin patent discloses:

(3) without materially changing their identity,

(Deposition of Francis W. Maxstadt.)

It is well known that carborundum crystals will not melt even at temperatures very much higher than the melting point of the metals used to bind them to the bit; and it is also well known that in this molten metal these crystals will not change their identity. This was recognized by Chamberlin, for he says at lines 46-51 of the specifications:

“The rotary motion of the drill bit edge against a hard substance, such as rock formation, brings the cutting edges of the carborundum crystals into play against said substance and causes a cutting or boring of the said substance to take place.”

and also at lines 85-88, where he says:

“\* \* \* will melt the capsule and the metal of the bit and capsule thereupon flows in around the crystals and binds them together in the end of the bit.”

This is clear recognition on the part of Chamberlin that the carborundum crystals remain intact and do not materially change their identity when subjected to this operation.

The specification of the Chamberlain patent discloses:

(4) causing a fusion to take place between the metal of low melting point and the metal of the tool,

at lines 83-88, in the following words:

“\* \* \* and in casting the bit in the mold, either by gravity or pressure, the heat of the cast metal will melt the capsule and the metal of the bit and capsule thereupon flows in around the crystals and binds them together in the end of the bit.” [81]

The specification of the Chamberlin patent discloses:

(5) allowing the metal of low melting point to cool and harden about the pieces and thus anchor them to the tool, in the same lines 83-88, (supra).

(Deposition of Francis W. Maxstadt.)

Thus it is seen that claim 5 of the patent in suit reads not only in words upon the disclosure of the Chamberlin patent, but in spirit as well.

Claim 10 of the patent in suit covers a method of facing tools which may be analyzed as follows:

- (1) associating pieces of an alloy containing tungsten and carbon with a metal of relatively low melting point,
- (2) simultaneously depositing the alloy and metal on the tool, as by welding,
- (3) with a heat incapable of melting the alloy to any material extent,
- (4) causing a fusion to take place between the metal of low melting point and the metal of the tool, and
- (5) allowing the metal to cool and harden about the alloy and thus anchor the alloy in place.

Claim 10 of the patent in suit is the same as claim 5, except that it is specifically limited to the use of an alloy of tungsten and carbon. While Chamberlin does not mention a compound of tungsten and carbon as the abrasive material to be used in his bit, nevertheless he states (Spec., lines 15-18):

“\* \* \* an abrasive material, such as carborundum crystals, although other metals and cutting crystals may be used.”

and also at lines 34-37:

“These crytals preferably are carborundum crystals of large size although corundum, garnet, alunite, etc., may be utilized in place of the carborundum.”

Tungsten carbide was produced by Moissan in 1896 and was used as an abrasive and as a constituent of cutting tools as [82]

(Deposition of Francis W. Maxstadt.)

early as 1914. It was extensively used for hard surfaced cutting tools prior to Stoodly's date of conception. In *Stoodly vs. Mills*, 67 Fed. (2d) 807, at page 815, the court found:

"(2 It was known (in the prior art) that tungsten carbide could be used advantageously in hard surfacing cutting tools."

It required no invention to substitute tungsten carbide for carborundum, since the properties of both were well known and both had been used as abrasives prior to both Stoodly and Chamberlin.

All of the other claims held valid and infringed in the case of *Stoodly v. Mills*, In Equity No. Y-101-J, are similar to claims 5 or 10, with minor limitations such as the use of oxy-acetylene welding. Affiant finds that each one of these claims is either completely anticipated by the disclosure of the Chamberlin patent, or in view of the disclosure of Chamberlin contains no invention.

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United States Patent No. 604,569, issued to Ringstrom May 24, 1898, anticipates claim 5 of the patent in suit. Ringstrom discloses a method of facing tools. The specification of the Ringstrom patent describes:

(1) first associating together a metal of relatively low melting point and pieces of a hard substance of relatively high melting point,

at page 1, lines 37-42, in the following words:

"In carrying out the invention I take fine particles of the abrading material—such as diamond-dust, corundum, carborundum, emery, &c.—and give to each particle or granule



(Deposition of Francis W. Maxstadt.)

of such material a metallic coating. This coating may be applied in several ways."

The specification of the Ringstrom patent discloses:

(2) supplying heat to the associated mass to cause the metal of low melting point to melt and be deposited on the tool and carry with it the pieces of hard substance depositing them on the tool, [83]

at page 1, lines 86-98, in the following words:

"The coated particles are now mixed with the molten metal or alloy, which is to embed them and bind them together. Such metal or alloy may consist of a suitable metal and sulfur, phosphorus, carbon, silicon, or other metalloid. As regards the form of the abrading tool or article, the composition may be cast into the form of disks of different sizes and shapes or be cast on the surfaces of wires or ropes, such as endless ropes for use in cutting stone, &c. It can also be cast on cloth and on the edges of thin metal plates to be used as saw-blades."

The specification of the Ringstrom patent discloses:

(3) without materially changing their identity, at page 2, lines 9-12, in the following words:

"The tool may be sharpened from time to time by this same mode of denudation of the angles or edges of the particles of cutting or abrading material."

This shows that Ringstrom appreciated that the abrading materials, such as diamond-dust, corundum, carborundum, emery, etc., remain intact at the temperature necessary to bind them to the tool, and their identity is not materially changed.

(Deposition of Francis W. Maxstadt.)

The specification of the Ringstrom patent discloses:

(4) causing a fusion to take place between the metal of low melting point and the metal of the tool,

at page 1, lines 86-89, in the following words:

“The coated particles are now mixed with the molten metal or alloy, which is to embed them and bind them together.”

and also at p. 2, lines 96-98:

“It can also be cast on cloth and on the edges of thin metal plates to be used as saw blades.”

The specification of the Ringstrom patent discloses:

(5) allowing the metal of low melting point to cool and harden about the pieces and thus anchor them to the tool.

at page 1, lines 96-98, in the following words: [84]

“It can also be cast on cloth and on the edges of thin metal plates to be used as saw blades.”

The casting process is not completed until the metal has cooled, and Ringstrom clearly shows that in this cooling process the pieces are firmly anchored to the tool.

While Ringstrom does not specifically mention tungsten carbide, he does not limit himself to the abrading material mentioned in the patent.

With the exception of tungsten carbide as an abrading material, the Ringstrom Patent anticipates claim 10 of the patent in suit, and no invention was required to substitute tungsten carbide for one of the abrading materials mentioned in the patent in suit.

Affiant finds that all of the claims held valid and infringed by the court in *Stoody v. Mills*, In Equity Y-101-J, are either antici-

(Deposition of Francis W. Maxstadt.)

pated by Ringstrom, or in view of the disclosure in the Ringstrom patent are invalid for lack of invention.

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The German Patent to Siemens & Halske No. 427,074, issued March 23, 1926, is for a "METHOD FOR THE PREPARATION OF ALLOYS FOR IMPLEMENTS (TOOLS, ETC.)". This patent discloses that if tungsten carbide in the form of grains or fragments is added to molten iron or other metals, the tungsten carbide will become merely embedded in the metal, and there will be no material change in the identity of the carbide. Page 2, lines 7-11 of the patent, as correctly translated, reads as follows:

"It appears that the tungsten carbide completely dissolves in the cobalt-chromium alloy and a perfectly homogeneous mass is obtained. With many other metals, the carbide is merely embedded. The advantages and disadvantages are governed in each case by the particular intended use."

This patent clearly shows that tungsten carbide may be embedded in molten steel without difficulty and that it can be substituted without difficulty or change in procedure for the car- [85] borundum or other abrasive materials mentioned in the Chamberlin and Ringstrom patents.

The British Patent No. 27,954, of 1908, to Morrison, is for a method of applying a hard surface to cutting tools. Morrison describes in detail the accepted and conventional practice of fusing and autogenously welding a rod of harder metal onto the surface of a bit. He also states (page 2, lines 25-34):

"But should I eventually find the results as regards hardness, toughness, or the like, to be not just what is required for the special purpose in view, owing to the high grade steel alloy immediately at hand, not being of precisely suitable

(Deposition of Francis W. Maxstadt.)

character, I vary the result by so applying the extremity of the high grade steel while in a state of semi-fusion, to small particles of such metal, or metals or their oxides, (as nickel, tungsten, chromium, manganese, and the like) that a little of such metal, or metals, or their oxides, may adhere thereto. I then fuse on to my armoured nosing fresh drops of the thereby reinforced high grade steel alloy, \* \* \*."

This is a complete disclosure of the associating of materials of higher melting points with a steel welding rod and applying heat by an oxy-acetylene torch to the associated mass sufficient to melt the steel welding rod and form a bond with the tool. The final character of the facing is determined by the properties of the materials which are associated with the welding rod. Tungsten carbide was not known commercially at the time of Morrison's disclosure. It would require no invention, however, in practicing Morrison's method, to utilize tungsten carbide in lieu of the reinforcing materials which Morrison specifies.

The Morrison patent discloses completely what has been referred to in the Stoodly-Mills litigation as the "hot rod method".

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Those claims of the patent in suit which were held valid in *Stoodly v. Mills*, In Equity No. Y-101-J, are all essentially similar in scope. Some of them, for example claims 5, 6 and 12, define the embedded hard substance of high melting point in broad terms. Others, such as claim 6, specify that this substance is "a tungstic material", while others, e. g. claim 10, are still more specific and require the presence of both tungsten and carbon in the embedded material.

The broader claims are completely anticipated by the Chamberlin patent alone, and by the Ringstrom patent alone. To employ tungsten carbide as the hard embedded material of high



(Deposition of Francis W. Maxstadt.)

melting point is entirely obvious in view of German Patent 427,074, and it was specifically found as a fact in *Stoodly v. Mills*, 67 Fed. (2d) p. 814,—

“It was known that tungsten carbide could be used advantageously in hard surfacing cutting tools”.

Any skilled operator of the acetylene torch, applying the ordinary technique of autogenous welding to the welding rod covered in the Stoodly patent 1,757,601, would inevitably carry out the method claimed in the patent in suit. Accordingly, each of the claims here under consideration is devoid of patentable novelty.

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Copies of the patents to Chamberlin No. 1,572,349; Ringstrom No. 604,569; German Patent No. 427,074, to Siemens & Halske, (and a correct translation thereof,); the British Patent No. 27,954 to Morrison, and Stoodly, et al. Patent No. 1,757,601, are attached hereto, marked respectively Exhibits 1, 2, 3, 3-a, 4 and 5, and made a part of this affidavit.



EXHIBIT No. 1

Feb. 9 , 1926.

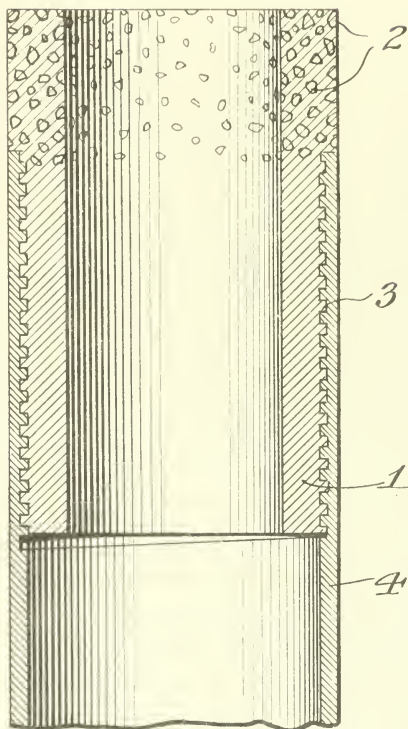
1,572,349

J. R. CHAMBERLIN

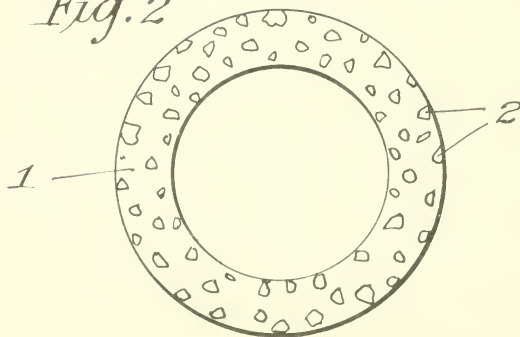
ROTARY CORE DRILL BIT

Filed June 19, 1922

*Fig. 1*



*Fig. 2*



*John R. Chamberlin* Inventor  
By *his Attorney*  
*Brooks & Hays*



# UNITED STATES PATENT OFFICE.

JOHN R. CHAMBERLIN, OF BRONXVILLE, NEW YORK.

## ROTARY-CORE DRILL BIT.

Application filed June 19, 1922. Serial No. 569,356.

*to all whom it may concern:*

Be it known that I, JOHN R. CHAMBERLIN, citizen of the United States of America, residing at Bronxville, in the county of Westchester and State of New York, have invented certain new and useful Improvements in Rotary-Core Drill Bits, of which the following is a full, clear, and exact description.

The present invention relates to rotary core drill bits.

The object of the invention is to provide a drill bit of a suitable material such as aluminum or an alloy thereof and in which incorporated in its cutting end an abrasive material, such as carborundum crystals, though other metals and cutting crystals may be used.

By way of illustration I have shown one form of my invention in the accompanying drawings in which:

Figure 1 is a vertical section of a rotary core drill bit, and Figure 2 is a plan view thereof.

Referring to the drawings, 1 is the rotary core drill bit preferably of aluminum or any alloy thereof, although it may be made of steel, copper, bronze, etc., in which a quantity of cutting crystals 2, is incorporated in the cutting end of said bit, a relatively soft metal forming a perfect binding agent filling all voids between the crystals, without impairing the tensile strength of the bit. These crystals preferably are carborundum crystals of large size although diamond, garnet, alundum, etc., may be utilized in place of the carborundum. At 3 a screw thread connection is shown with a barrel 4 which in the usual practice of drilling is connected with suitable rotating rods (not shown).

In drilling operations, the drill rods are driven from a suitable source of power and the drill rods in turn rotate the core barrel and the rotary core drill bit mounted thereon. The rotary motion of the drill bit edge against a hard substance, such as rock formation, brings the cutting edges of the carborundum crystals into play against the substance and causes a cutting or boring

operation. The crystals first exposed and the metal holding them in position, whereupon the crystals in the rear of those first exposed will come into play and take their place in cutting or boring agents in the boring operation. This will continue until the bit is worn down to a point where the cutting crystals are all used up, whereupon a new bit 1 is substituted for the old one and the boring operation resumed, all in the usual manner.

In the manufacture of my new bit, I prefer to use a metal such as aluminum, or one of its alloys, as the metal of the bit and to use carborundum crystals of large size as the cutting material, as said metal and crystals are lighter than the carborundum and in casting of the bits where the carborundum crystals are first put in the bottom of the mold there is less tendency for the crystals to float toward the top of the bit. This insures that the maximum number of crystals will be at a point in the bit where they can be all availed of in the cutting or boring operation.

To insure that the crystals will be at the cutting end of the bit, in another method of manufacture, the crystals are first packed into a capsule of readily fusible material such as lead, zinc, etc., and placed in the bottom of the mold, and in casting the bit in the mold, either by gravity or pressure the heat of the cast metal will melt the capsule and the metal of the bit and capsule thereupon flows in around the crystals and binds them together in the end of the bit.

By virtue of the construction of rotary core drill bits above described, drilling operations through rock formation are carried on in circulating water at higher speeds of rotation than heretofore customary.

What I claim is:

1. A rotary core drill bit comprising an aluminum tube and cutting crystals incorporated only in one end thereof.

2. A rotary core drill bit comprising an aluminum tube and carborundum crystals incorporated in one end thereof.

In testimony whereof I hereto affix my

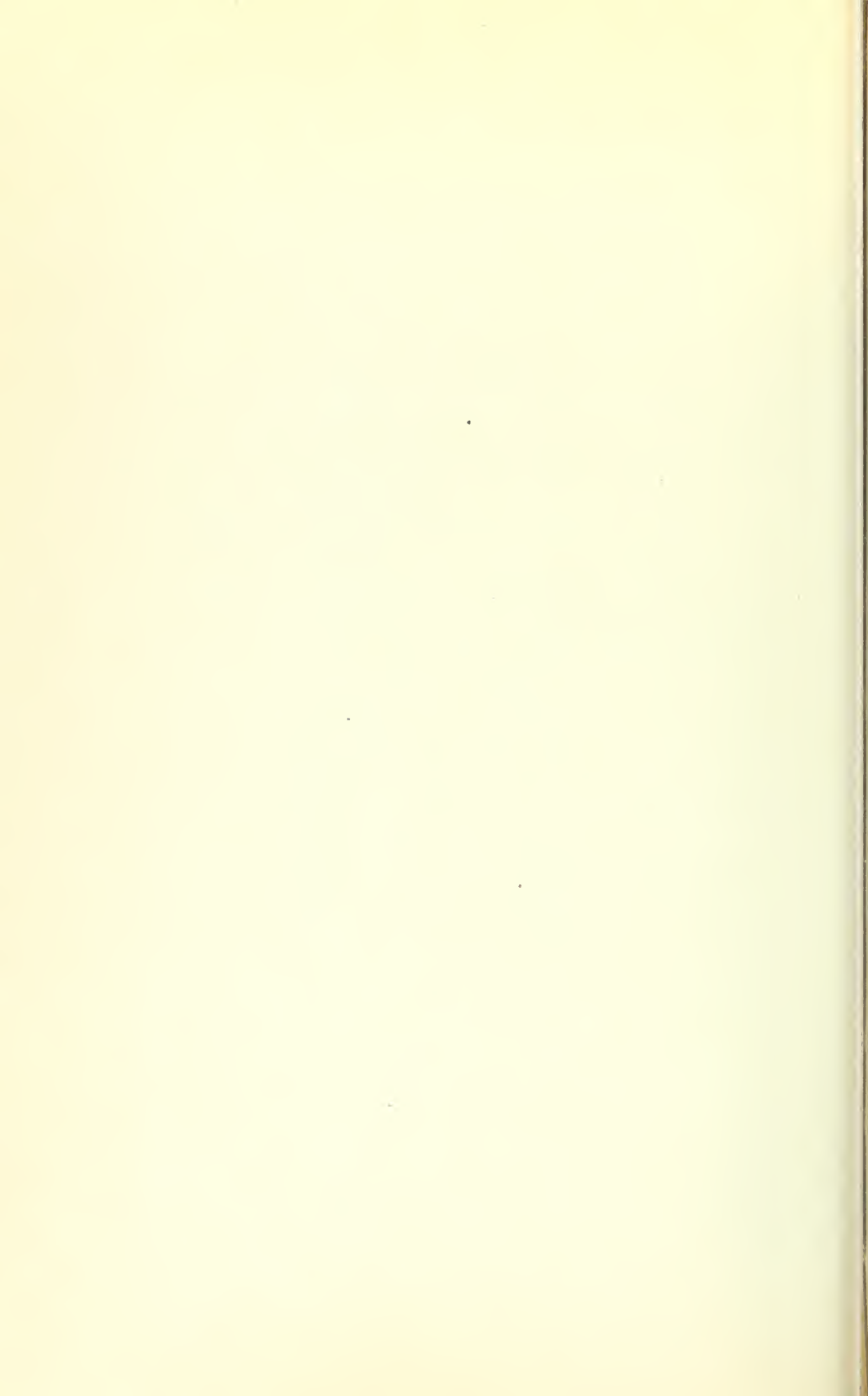


EXHIBIT No. 2

Sheets 1 and 2

(No Model.)

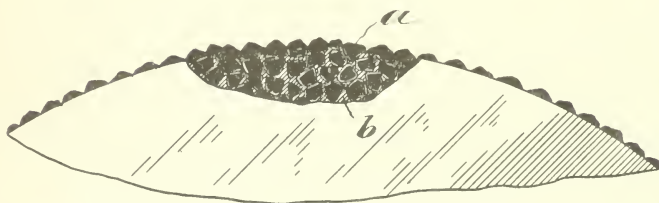
A. V. RINGSTRÖM.

GRINDING, ABRADING, OR CUTTING MATERIAL AND MODE OF  
PREPARING SAME.

No. 604,569.

Patented May 24, 1898.

*Fig: 1.*



*Fig: 2.*



WITNESSES:

*T. H. Winan*

*Peter H. Ross*

INVENTOR

*August V. Ringström*

BY

*Hans Gorned*



AUGUST VILHELM RINGSTRÖM, OF ÖREBRO, SWEDEN, ASSIGNOR TO NIL  
EYVIN FRYKHOLM, OF STOCKHOLM, SWEDEN.

GRINDING, ABRADING, OR CUTTING MATERIAL AND MODE OF PREPARING SAME.

SPECIFICATION forming part of Letters Patent No. 604,569, dated May 24, 1898.

Application filed December 26, 1895. Serial No. 573,393. (No model.)

*all whom it may concern:*

Let it be known that I, AUGUST VILHELM RINGSTRÖM, a subject of the King of Sweden and Norway, and a resident of 34 Storgatan, Örebro, in the Kingdom of Sweden, have invented certain new and useful Improvements in Grinding, Abrading, or Cutting Materials and the Mode of Preparing the Same, of which the following is a specification.

My invention relates to the class of compositions for grinding, abrading, cutting, or polishing wherein the abrading material in the form of pieces is united in a mass of the proper nature by means of metal used as a binding material. Heretofore, so far as I am aware, this has been applied only in making millstones, where relatively large bits or pieces of emery have been united or joined in a mass by simply pouring over or among them a molten metal—such as zinc, for example—which has a comparatively low melting-point. My invention does not employ the abrading material in the form of bits or pieces, but in fine particles, like dust, and it has been found impracticable to unite a mass of such fine material to unite all the particles to each other with molten metal by simply mixing the latter with the particles of abrading material. To overcome this difficulty and to provide a cutting or grinding surface on the article or tool is the object of the present invention, which consists, essentially, in first coating each particle of the abrading material with metal, then mixing the coated particles with molten metal or metallic alloy, and then casting the mass to give it the proper form.

In carrying out the invention I take fine particles of the abrading material—such as diamond-dust, corundum, carborundum, emery, &c.—and give to each particle or granule of the material a metallic coating. This coating may be applied in several ways. For example, the abrading material may be placed in a suitable solution of a metallic salt, to which a reducing agent is added—for instance, a solution of oxid of silver in ammoniacal solution to which is added a reducing agent, as glucose-sugar, tartaric acid, &c.—or a coating of metal may be applied mechanically—for example, by first coating the particles or granules of the abrading material with some

refractory adhesive substance (as “water-glass,” so called) and then coating the particles with powdered metal or metal-dust, the latter which is caused to adhere to the particles by the water-glass. This may be effected by putting the particles of abrading material in a mixing-drum with a sufficient quantity of the water-glass to cover them, then adding to the mass a sufficient quantity of the metal-dust, and then shaking or agitating the mass until the particles are all thoroughly coated. The metallic coating, however applied, will be a mere film, very thin; but it will have sufficient strength to answer the purposes intended if the metal used for binding or connecting the particles in forming the tool or article has a lower melting-point than the coating metal and does not readily alloy with the latter. Otherwise the coating or film of metal on the particles must be strengthened by applying a thicker coating, according to the well-known electroplating process or by electroplating alone, in which case the particles or granules of abrading material will be first coated with graphite, manganese peroxide, &c., in lieu of metallic dust. This electroplating may be conveniently effected by first covering the particles of abrading material with a conducting coating or film, as explained, and then immersing them in a suitable metallic-salt bath—for instance, an alkaline copper-salt bath—wherein they are allowed to come in contact with the electro-positive metal, as zinc. This will give them a coating of copper. The coated particles are now mixed with the molten metal or alloy which is to embed them and bind them together. Such metal or alloy may consist of a suitable metal and sulfur, phosphorus, carbon, silicon, or other metalloids. As regards the form of the abrading tool or article, the composition may be cast into the form of disks of different sizes and shapes or be cast on the surfaces of wires or ropes, such as endless ropes for use in cutting stone, &c. It can also be cast on cloth and on the edges of thin metal plates to be used as saw-blades. After the compound has been cast the points or cutting edges of the particles of abrading material are exposed or denuded by removing the metal covering them along the cutting

surface of the tool, and this may be done fairly well by grinding away the metal with sharp sand mixed with water or oil, but preferably by dissolving the metal away with acids or corrosive chemicals; or if the binding metal be an electropositive one, as zinc, this denudation of the particles may be affected by galvanism in a well-known manner. The tool may be sharpened from time to time by this same mode of denudation of the angles or edges of the particles of cutting or abrading material.

In the accompanying drawings, which illustrate the invention, Figure 1 is an enlarged or magnified fragmentary view of a part of a tool constructed according to my invention; and Fig. 2 is a view on a similar scale, showing some of the metal-coated particles or granules before being bound together by the embedding metal.

In the views, *a* represents the coated granules of abrading material, and *b* the binding or imbedding metal.

Having thus described my invention, I claim—

1. The herein-described method of preparing abrading materials which consists in applying to the separate, fine grains of a hard abrading material, as corundum, a coating of metal, then mixing said coated grains with molten metal, and then shaping said mixture into suitable forms for use.

2. As an improved article of manufacture an abrading or cutting tool having its surface composed of a mass of fine particles or granules of hard abrading material, each coated with a film or metal, and an embedding or binding metal about and among said granules, the binding metal having a lower melting-point than that of the metal with which the granules are coated, substantially as set forth.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

AUGUST VILHELM RINGSTRÖM

Witnesses:

ERNST SVANGVIST,  
CARL TH. SUNDHOLM.





AUSGEGEBEN AM  
23. MÄRZ 1926

REICHSPATENTAMT  
PATENTSCHRIFT

APR 8 - 1926

D. PATENT OFFICE

Nr 427074

KLASSE 40b GRUPPE 17

(S 59317 VI 40b)

Siemens & Halske Akt.-Ges. in Berlin-Siemensstadt\*).

Verfahren zur Herstellung von Legierungen für Geräte (Werkzeuge usw.).

Patentiert im Deutschen Reiche vom 25. März 1922 ab.

Gemäß vorliegender Erfindung werden Gegenstände, die besonders große Härte haben sollen, aus Wolframkarbid dadurch hergestellt, daß das Wolframkarbid einem Metall oder einer Metallegierung einverleibt wird. Das Metall oder die Legierung wird geschmolzen und das Wolframkarbid in feiner Verteilung oder auch in Form von Körnern eingetragen.

Als Trägermetall kann beispielsweise irgendein weiches Metall dienen, wie Kupfer, Silber, Blei o. dgl. Es können aber auch Metalle oder Legierungen, wie Eisen, Nickel, Kobalt, verwendet werden. Besonders geeignet ist eine Legierung, die aus Kobalt und Chrom besteht. Gerade solche Kobalt-Chrom-Legierungen nehmen das Wolframkarbid sehr gut auf und ergeben ein Material von vorzüglichen Eigenschaften. Die Härte wächst mit dem Wolframkarbidgehalt. Gleichzeitig nimmt allerdings die Zähigkeit der Legierung mit steigendem Karbidgehalt ab. Man wird von Fall zu Fall, je nach den verlangten Eigenschaften der Legierung, den Karbidgehalt zu wählen haben. Bereits mit 1 Prozent Karbidzusatz bekommt man eine sehr beachtliche Härtesteigerung; bei Zusätzen von 10 bis 15 Prozent hat man eine Legierung, die den besten gehärteten Stahl weit übertrifft und gleichwohl noch hervorragende Zähigkeit besitzt. Selbst bei 20 Prozent Zusatz bekommt man noch eine Legierung, die

für sehr viele Zwecke, auch z. B. für Werkzeuge zur Bearbeitung von Metall oder Eisen geeignet ist. Geht man wesentlich darüber hinaus, so wird im allgemeinen das Material zu spröde.

Die Legierung von Kobalt und Chrom kann in ihrer Zusammensetzung innerhalb weiterer Grenzen variieren; man kann in der Regel gleiche Teile nehmen, besser aber in einem Verhältnis von etwa 2 Teile Chrom ungefähr 3 Teile Kobalt zu nehmen.

In der Kobalt-Chrom-Legierung scheint das Wolframkarbid vollständig aufzunehmen und man bekommt eine vollkommen homogene Masse. Bei manchen anderen Metallen handelt es sich nur um eine Einbettung. Vorzüge und Nachteile sind in jedem Einzelfall durch den besonderen Verwendungszweck bedingt.

In welcher Form das Wolframkarbid dem fertigen Körper enthalten ist, ist naturgemäß von den angewendeten Metallen und von den angewendeten Karbidmengen und von mancherlei sonstigen Umständen abhängig. Es bilden sich unter Umständen binäre oder ternäre Karbide, ohne daß die guten Eigenschaften des Körpers dadurch beeinträchtigt werden.

Es ist bekannt, Wolframmetall nicht nur zu Eisen, sondern auch zu Chrom-Kobalt-Legierungen zuzusetzen, und es ist auch bekannt, daß z. B. kohlenstoffhaltige Wol-





Chrom-Kobalt-Legierungen sehr hart sind. Es ist aber nicht bekannt, in solche Legierungen Wolframkarbid einzutragen. Die Härte der Kobalt-Chrom-Legierungen läßt sich so entsprechend dem Gehalt an Wolframkarbid steigern und einstellen.

#### PATENT-ANSPRÜCHE:

1. Verfahren zur Herstellung von Legierungen für Geräte (Werkzeuge usw.) von sehr großer Härte, dadurch gekennzeichnet,

daß Wolframkarbid in ein zenes Metall oder eine Metalllegierung getragen wird.

2. Anwendung des Verfahrens nach Anspruch 1 zur Herstellung von Legierungen aus Chrom, Kobalt, Wolfram und Kohlenstoff, dadurch gekennzeichnet, daß die geschmolzene Chrom-Kobalt-Legierung aus einem Teil Chrom und 2 Teilen Kobalt 1 bis 20 Prozent Wolframkarbid eingetragen werden.



(Deposition of Francis W. Maxstadt.)

EXHIBIT 3-A.

TRANSLATION OF GERMAN PATENT No. 427,074

Date: March 25, 1922

Issued: March 23, 1926

Patentee: Siemens & Halske Akt.-Ges. in  
Berlin-Siemensstadt

Title: METHOD FOR THE PREPARATION OF ALLOYS  
FOR IMPLEMENTS (TOOLS, ETC.)

In accordance with the present invention, objects which are to have great hardness, are made from tungsten carbide by embodying the tungsten carbide into a metal or a metal alloy. The metal or the metal alloy is melted and the tungsten carbide is embodied in finely distributed form or else in the form of grains.

The carrier metal may be any soft metal such as for instance copper, silver, lead or the like. However, other metals or alloys such as iron, nickel, or cobalt may be used. Particularly suitable is an alloy which consists of cobalt and chromium. Such cobalt-chromium alloys take the tungsten carbide very well and result in a metal of excellent properties. The hardness increases with the contents of tungsten carbide. At the same time however the toughness of the alloy decreases with increasing carbide contents. The carbide percentage will have to be determined from case to case in accordance with the properties desired. Even the addition of only one percent carbide results in a very noticeable increase in hardness; when using additions of from ten to fifteen percent, an alloy is obtained which far surpasses the best hardened steel and still is of excellent toughness. Even at an addition of twenty percent, an alloy is obtained which is suitable for many purposes such as for instance for tools used

(Deposition of Francis W. Maxstadt.)

for working on metal or [94] stone. If the aforesaid percentage is substantially exceeded the metal gets too brittle as a rule.

The cobalt-chromium alloy may vary in its composition within wide ranges; it is possible for instance to take approximately equal parts of cobalt and chromium, however it is better to take about three parts of cobalt and two parts of chromium.

It appears that the tungsten carbide completely dissolves in the cobalt-chromium alloy and a perfectly homogeneous mass is obtained. With many other metals, the carbide is merely embedded. The advantages and disadvantages are governed in each case by the particular use of the substance.

The form in which the tungsten carbide is contained in the finished substance naturally depends upon the metals used, also depends upon the quantity of carbide used and upon various other circumstances. Under certain circumstances, binary or ternary carbides are formed without impairing the good properties of the substances.

It is known to add metallic tungsten not only to iron but also to chromium-cobalt alloys and it is furthermore known that carbon-containing tungsten-chromium-cobalt alloys are very hard. It is not known, however, to embody tungsten carbide in such alloys. The hardness of the cobalt-chromium alloys may be increased and regulated in proportion to the contents of tungsten carbide.

## CLAIMS

1. Method for the preparation of alloys for implements (tools etc.) having great hardness, characterized by the fact that tungsten carbide is embodied into a molten metal or metal alloy.

[94½]

2. The use of the method as per claim 1 for the preparation of alloys made of chromium, cobalt, tungsten and carbon, characterized



(Deposition of Francis W. Maxstadt.)

acterized by the fact that from one to twenty percent of tungsten carbide are embodied into the carbon chromium-cobalt alloy consisting of one part of chromium and of from one to two parts cobalt. [95]

EAL\*CAC





*Date of Application, 8th June, 1909 —Accepted, 13th Jan., 1910*

### COMPLETE SPECIFICATION.

#### **Improvements in the Manufacture of Tools for Metal Working, Shear and the like through the Agency of the Oxy-acetylene Blow and the like.**

I, ERNEST ROLAND MORRISON, Engineer, at present residing at Ashl Elmfield Park, Gosforth, Newcastle on Tyne, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

- 5 My invention relates to a new process of armouring the cutting or working edges of machine tools and the like, by uniting expensive varieties of steel with cheaper qualities of steel or iron, or by varying the quality of the part constituting the working or cutting edge. This has been proposed to be done by electric heating or welding, and by fusion welding with copper. But according to my invention, it is done by autogenous fusing or welding by means of oxy-acetylene and the like blowpipe, a process which is well known for the purposes.

I am fully aware of already existing methods of joining or compounding irons and steels by:—

- 15 (a) soldering or brazing, as described by Patent 352/1908 (Viallon),  
 (b) impact or pressure at welding temperatures, as detailed in the following Patents:—Mills 354/1876; Telford 4675/1890; Bingham 4036/1894; Kirk 8683/1906; Eadon 3678/1907; and Ludwig 20,417/1907, and by  
 (c) fusion with copper or aluminium strips interposed between the parts

- 20 joined, as set forth in the Simpson Patents 86/1907, and 16,879/1907.

- I am also cognisant of the already existing method of face-hardening metal by electricity as described in Spencer's Patent 13,565/1896, and of a known method of mending cracks in cast iron with the oxy-hydrogen blow as specified in the Magnus Patent 16,647/1905, and by the unpatented method of doing the same thing with the oxy-acetylene blowpipe.

- 25 But as the two last named blowpipe operations solely deal with repairing fractured iron castings, or the welding of cast iron to cast iron, they do not bear upon the matter. For seeing that my invention on the contrary applies to the welding or compounding together of cheap irons (wrought or cast) of mild steels with more expensive tool, or "high grade" steels, having as a specific object the more economical production or armouring of cutting tools and implements than has hitherto been accomplished, the objects in view are perfectly distinct.

- My ordinary method of working is firstly to fix upright in a vice, the  
 35 of ordinary mild steel, or wrought or cast iron, upon the upper end, edge portion, of which I wish to operate. Secondly to take in my left hand a piece of high grade or tool steel (grasped if necessary within a pair of tongs) and hold it immediately over the other. Thirdly, to take in my right hand, an oxy-acetylene blowpipe, and to apply the hottest part, or the inner white cone of its flame simultaneously to the upper end of the mild steel or iron, and the lower end of the high grade steel, for a few seconds until both are in a state of semi-fusion. Then I momentarily direct the flame more particularly to the highly heated end of the high grade steel, until it is so completely fused





*Improvements in the Manufacture of Tools for Metal Working, Shearing, &c.*

liquefied, that portions of it drop away on to the other, and form a complete weld.

The *modus operandi* is somewhat analogous to heating a piece of sealing in an ordinary gas jet, and dropping melted portions upon the document to be sealed. And I continue adding fused drops of the high grade steel, until I obtain the thickness or depth of armoured nosing on the piece of mild steel iron which I desire. Finally, laying aside the unused portion of the piece of high grade steel, I well fuse with my blowpipe the newly armoured nosing until a thoroughly incorporated and homogenous weld is secured.

Or I can vary the first operation when so desired, by fusing or welding together homogeneously a length of high grade steel, and one of ordinary mild steel or iron.

In this case I first chamfer or  $\nabla$  the edges to be joined, by grinding down on an emery wheel, or by other convenient means. I then lay the two pieces upon a slab of firebrick or other refractory material, with the parts to be welded together placed in contact or in close proximity. And after fusing together with my blowpipe (turning the pieces round for this purpose as may be necessary after finishing each side) I fill up any hollows or interstices left, by fusing into them drops of mild steel or iron, preferably in the form of wire, sticks or rods, from one eighth to three sixteenths of an inch in thickness.

I then finally work my blowpipe back and forward across the weld until thorough incorporation is secured. And when the job has cooled off, I finish on an emery wheel, or in some cases before cooling off, I hammer all round the weld while still in a semi-plastic state.

But should I eventually find the results as regards hardness, toughness, the like, to be not just what is required for the special purpose in view, owing to the high grade steel alloy immediately at hand, not being of precisely suitable character, I vary the result by so applying the extremity of the high grade steel while in a state of semi-fusion, to small particles of such metal, or metal or their oxides, (as nickel, tungsten, chromium, manganese, and the like) so that a little of such metal, or metals, or their oxides, may adhere thereto. I then fuse on to my armoured nosing fresh drops of the thereby reinforced high grade steel alloy, and finally well fuse all round the completed nosing until thorough and homogeneous incorporation is secured.

Having now particularly described and ascertained the nature of my invention, and in what manner the same is to be performed, I declare that what I claim is the manufacture of tools for metal working, shearing, cutting, the like, by:—

1. The armouring of mild steel, and wrought or cast iron, by welding or fusing autogenously on to the same, by means of the oxy-acetylene and the blowpipe, in the manner described under "my ordinary method of working with molten drops of high grade and expensive steels.
2. The modification of my ordinary method of working as described under the words "I can vary the first operation when so desired," and
3. The amplification of either 1 or 2 (where the result does not fully meet tool requirements) by the method set forth in the paragraph beginning "But should I eventually find the result as regards hardness, toughness, or the like

Dated this Twenty-first day of December, 1909.

ERNEST R. MORRISON



EXHIBIT No. 5

May 6, 1930.

W. F. STOODY ET AL

1,757,601

WELDING ROD

Filed Jan. 30, 1928

Fig. 1.

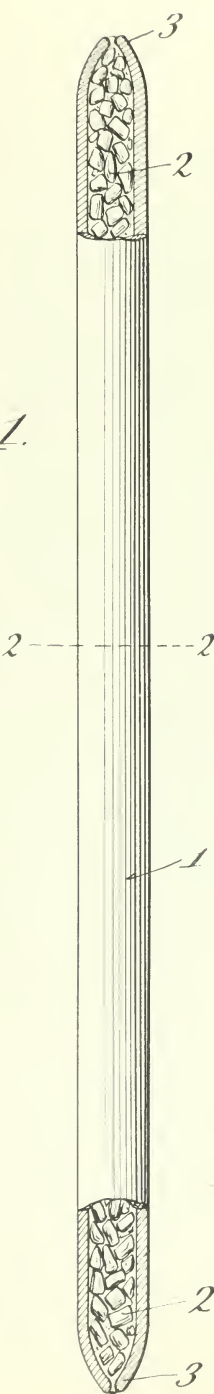
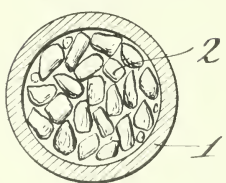


Fig. 2.



Inventors.  
Winston F. Stoody.  
Shelley M. Stoody.  
Norman W. Cole.  
by Hazard and Miller  
Attorneys



## UNITED STATES PATENT OFFICE

WINSTON F. STOODY, SHELLEY M. STOODY, AND NORMAN W. COLE, OF WHITTIER, CALIFORNIA, ASSIGNORS TO STOODY COMPANY, OF WHITTIER, CALIFORNIA CORPORATION OF CALIFORNIA

## WELDING ROD

Application filed January 30, 1928. Serial No. 250,697.

Our invention relates to a welding rod, and it is an object of this invention to provide a simple and efficient welding rod in the shape of a tubular container consisting of mild steel or other metal alloy of a comparatively low melting point, said tubular welding rod containing particles or pieces of a material or an alloy of exceptional hardness and toughness suitable for facing cutting, drilling and boring tools.

Our invention consists of the construction and arrangement of parts hereinafter described and claimed.

Referring to the accompanying drawings forming a part of this specification,

Figure 1 is an elevation partly in section, of a welding rod embodying our invention.

Fig. 2 is a horizontal section taken on the line 2—2 of Fig. 1.

In the drawings, 1 indicates a tube made of mild steel or any other metal or alloy having a comparatively low melting point such as mild steel. The tube 1 is filled with broken pieces or particles 2 of an alloy, carbide or element such as black diamonds of great hardness and toughness; but we prefer to use an alloy set forth in our copending application for an alloy, containing tungsten and carbon, Serial No. 250,699 filed January 30, 1928. The ends of the tube 1 are preferably pinched together as at 3 so as to confine the particles within the tube.

In the use of the welding rod the tools are faced with a layer or skin of mild steel or metal of which the tube 1 is composed, in which layer the particles or pieces 2 are embedded. We prefer to use an acetylene torch in melting the welding rod. The particles 2 of the alloy or element having a considerable higher melting point than the mild steel of which tube 1 is composed, will not be affected by the acetylene torch. The metal of the

is then provided with a surface layer of hard tool steel, though the second layer of metal may be omitted. The method of resulting product of such facing of tools is described and claimed in our copending application, filed January 30, 1928, Serial No. 250,698. The second layer of hard tool steel may be omitted, and the particles 2 embedded in the metal of the welding rod deposited on the face of the tool, may be used without the second layer of metal, and will produce good results.

Various changes may be made in the construction and arrangement of parts of the welding rod, without departing from the spirit of our invention as claimed.

We claim:

1. A welding rod comprising a tubular container closed at one end and made of mild steel, and pieces of a hard alloy having a higher melting point which will not be materially affected by a welding temperature to lose its original identity and mix with the mild steel, contained in said container.

2. A welding rod comprising a tubular container made of a metal of a comparatively low melting point and pieces of an alloy containing tungsten and carbon within said container.

3. A welding rod comprising a metal of a comparatively low melting point, and pieces of an alloy containing tungsten and carbon associated therewith.

4. A welding rod comprising a granular tungsten carbide surrounded by a metal of a comparatively low melting point.

5. A welding rod comprising a granular mass of an alloy containing tungsten and carbon inclosed within a metal of a comparatively low melting point, the particles of the alloy being of such size that they will not be completely melted or mixed with the metal

inclosed within a metal of comparative-  
v melting point, the particles of the al-  
eing of such size that they will not be  
letely melted or mixed with the metal  
: a welding temperature.

A welding rod comprising a mass of  
ilar tungsten carbide held together in  
ke form by a metal of comparatively low  
ng point.

testimony whereof we have signed our  
s to this specification.

WINSTON F. STOODY.

SHELLEY M. STOODY.

NORMAN W. COLE.



During the proceedings had before the Court on said motion for temporary injunction, there were introduced in evidence by defendant the following patents, copies of which are at this point incorporated herein:

British Patent to Spencer No. 13,565 of 1896;

U. S. Patent to Jones No. 1,387,157;

U. S. Patent to Mills No. 1,650,905;

U. S. Patent to Wyckoff, et al., No. 529,990. [100]

## COMPLETE SPECIFICATION.

## Improvements in Face Hardening Metals.

I, JOHN WATSON SPENCER of Newburn, Newcastle-on-Tyne, in the County of Northumberland, Steel Manufacturer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement :—

With the object of obtaining articles made in metals, especially those made of iron or steel, having particular parts or surfaces of various degrees of hardness that may be desired while the remaining portion of the object, if so desired, is of a mild or ductile nature, I well or fuse onto the parts or surfaces so to be hardened a coating of metals or their alloys (including carbon or other of the non metallic elements or their combinations) of any desired form or thickness and of such a nature that any varying degree of hardness up to the maximum may be obtained.

Such a coating material may be composed of (for instance) an alloy of chromium iron and carbon, and is readily united with the softer steel and forms a surface which can receive intense hardness when hardened, or other suitable material dependent on the particular purpose for which finished article is destined.

This may be effected either by means of the electric arc or by means of the heating effect due to the resistance offered to the passage of an electric current by the substances to be so united.

The operation may be performed by electrically connecting the article to be operated upon with the source of the electric energy so that it shall form one pole of the circuit, while the other pole is formed of a carbon pencil in electric communication with the other terminal of the generating apparatus. In this manner an electric arc may be struck between the carbon pencil and any desired part or surface of the article which forms the other electrode, the part or surface so acted upon being fused or melted under the influence of the heat generated by the passage of the electric current across the intervening space. The hard material which is to be welded on is then gradually added in such quantity as may be required and fused under the arc to the parts previously fused and that have to be face hardened, or the portions to be hardened may have the hard metal or alloy in a fluid state poured over their surface while they are in a state of fusion.

Or again the article may be locally heated by being made to form part of an electric circuit so that the heat induced by the resistance offered to the passage of the electric current may raise the temperature to the required point when the metal or alloy, previously melted in a crucible or furnace, may be flowed over the surface.

Articles so treated may afterwards be hardened or tempered by any of the known processes which may be found to be most suitable or convenient without interfering with the soft and ductile parts of the articles which have not been so acted upon.

In either case it is important that the adjacent surfaces of the parts to be united should be perfectly clean and free from scale or other extraneous matter, and this may be secured by the use of a suitable fusible flux to protect the surfaces from the oxidizing influence of the atmosphere and also remove any scale that may have been formed, while the parts can be hammered or pressed together in order to consolidate the material and secure a sound and homogeneous weld.

By this process a coating of intense hardness may be obtained as forming part of the more ductile material of which an object may be made without in any way reducing the ductility of it.





*Spencer's Improvements in Face Hardening Metals.*

The relative intensity of hardness and degree of softness of the combined metal may also be readily modified to suit any particular requirement.

Many of the hardest metals and their alloys are most refractory and cannot be fused or welded on to iron or steel or other metals by the processes ordinarily employed, but this process enables numerous and various combinations to be formed.

The welding or fusing energy of the electric arc may be applied by means of what is known as the "Barnado" process or by other suitable means.

Such combinations of metals produced as herein set forth can be treated mechanically, if necessary, by forging, rolling or other process to reduce or otherwise modify the thickness or relative thickness of the combined metals, as for instance in the production of thin plates for use as protective coverings for ships, torpedo boats or for other use where a ductile plate with a hardened surface is needed.

The uses and applications of my improvements in face hardening metals are very numerous, as for instance to dies for the stamping of metals *etc.*, stamps for crushing quartz or any of the metallic ores or other hard substance, ball or other bearing punches, shear blades, drills and tools intended for the cutting and shaping of metals or for any tool or appliance which requires a hard face, surface or edge in order to resist the destructive action due to the rapid cutting or wearing of the surface being operated upon.

If the whole or a considerable portion of a stamp for instance be made of a degree of hardness requisite to resist such cutting and wearing actions as accomplished by the processes generally employed in dealing with hard steel as used for stamping purposes it is found that the metal which forms that portion of the stamp is rendered brittle and unadapted to afford the requisite resistance to the sudden and severe stresses to which it is liable.

By treating the stamp however in the manner already described that portion only which is subjected to the more direct action of the substance being operated upon is covered or coated with a skin of extremely hard material, able to resist the detrusive action of the hardest substance, while it is backed up and supported by a tougher and more ductile material.

Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—

1. The improved method of face hardening metals or obtaining surfaces or portions of objects made in metals, especially of iron or steel, of degrees of hardness varying from other parts thereof, which consists in welding or fusing upon bodies of such metals, coatings of metals or their alloys (including carbon or other of the non-metallic elements or combinations) by the aid of the electric arc, or other suitable means of applying the welding or fusing properties of electrical energy, substantially as and for the purposes hereinbefore set forth.

2. The hereinbefore described method of case hardening metals or producing varied degrees of hardness between the surfaces and the interior of metallic bodies by electrically welding or fusing onto the body of metal a coating or coating of such metal or the substances herein stated ready for further treatment, as and for the purpose stated.

Dated the 16th day of March 1897.

50

WM. BROOKES & SON,  
55 & 56 Chancery Lane, London, Agents for the Applicant





1,387,157.

Patented Aug. 9, 1921.

FIG. 1.

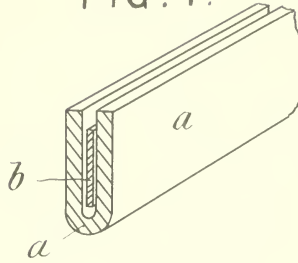


FIG. 2.

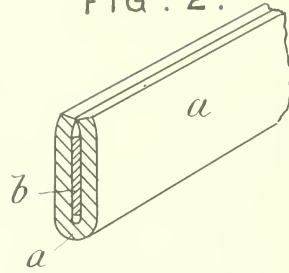


FIG. 3.

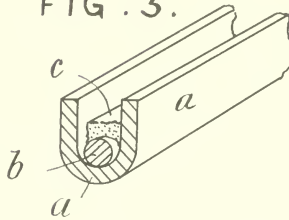


FIG. 4.

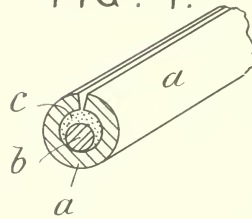
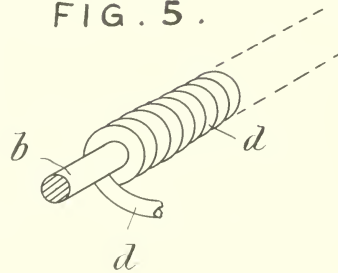


FIG. 5.



INVENTOR:  
Ernest Henry Jones  
By Wm Wallace White



# UNITED STATES PATENT OFFICE.

ERNEST HENRY JONES, OF CANONBURY, LONDON, ENGLAND.

## WELDING AND BRAZING.

387,157.

Specification of Letters Patent.

Patented Aug. 9, 1912

Application filed September 18, 1918. Serial No. 254,568.

*To all whom it may concern:*

Be it known that I, ERNEST HENRY JONES, subject of the King of Great Britain, residing at 4 Grange road, Canonbury, London, England, have invented new and useful improvements in Welding and Brazing, of which the following is a specification.

This invention relates to welding and brazing rods which are used with an oxy-acetylene or other blow pipe and has for its object improvements whereby the weld or joint may be effected with greater celerity and efficiency than heretofore.

According to this invention, the welding rod is constructed or composed of all the materials necessary to produce under the heat of the blow pipe the requisite metal or alloy for the purpose intended.

With this object a metal base, such as mild steel or cast iron, or brass or gunmetal in the form of a rod, tube, or channel, is electroplated with and has secured therein either metal or a combination of other metals or alloys so that the welding rod under the influence of the heat of the blow pipe deposits the required metal or alloy to suit the weld or joint. In the case of mild steel or iron the surface of the rod or tube may be casehardened to provide an additional amount of carbon.

For example, a mild steel rod which has been electroplated with nickel when used as a welding rod produces a metal weld or joint of a greater tensile strength than if a nickel steel welding rod had been employed, and has the further advantage that the molten metal flows more freely and settles in greater density than does nickel steel under similar conditions.

Again: all the materials necessary for the depositing of what is known as "high speed steel" may be combined in a welding rod; for example, a channel section mild steel welding rod with a carbon of cast iron content, and a suitable proportion of vanadium, tungsten, molybdenum, chromium,

aluminium, or the like may be employed for depositing metal on the cutting parts of tools, dies and the like.

The accompanying drawings illustrate various examples of construction where one or more metals or alloys may be secured in the base in accordance with this invention.

Figures 1 and 2 illustrate a channel section base *a* containing a strip *b* of a metal or alloy, Fig. 2 representing the rod after it has been subjected to pressure in order to secure the strip in position.

Figs. 3 and 4 illustrate a channel section base *a* containing a wire *b* of a metal or alloy and a filling *c* of more or less rare metals in powder or paste form, Fig. 4 representing the rod after it has been subjected to pressure to secure the contents.

Fig. 5 illustrates a wire or ribbon base wound (in close or open spirals) upon a wire *b* of a metal or alloy.

It is advantageous to inclose the metal or alloy within the base, as illustrated by way of example in the accompanying drawings, as by so doing the metal or alloy is protected and does not burn away uselessly. These remarks, however, do not apply to electro-plated rods which I find quite satisfactory.

I claim:—

1. In combination, a hollow member formed of a basic metal, an alloy and a welding mixture secured within said member.

2. A solder formed of an alloy, a welding mixture, and a member formed of a basic metal bent to inclose and secure the alloy and welding mixture within the member.

3. A solder formed of an alloy, and a basic metal member wound around said alloy in the form of a coil.

In testimony whereof I have signed my name to this specification.

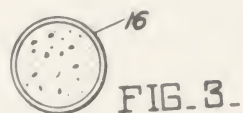
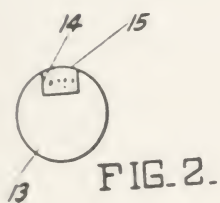
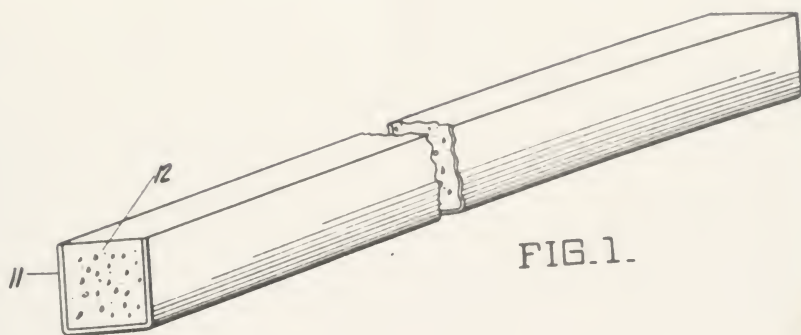
ERNEST HENRY JONES.



Nov. 29, 1927.

O. L. MILLS  
WELDING ROD  
Filed Dec. 21, 1925

1,650,905



INVEN'  
Oscar L. Mills  
BY *A D 70*



## UNITED STATES PATENT OFFICE.

OSCAR L. MILLS, OF LOS ANGELES, CALIFORNIA.

## WELDING ROD.

Application filed December 21, 1925. Serial No. 76,836.

This invention relates to the art of welding, and more particularly to welding rods. Such rods are used for example in electrical welding, as one of the electrodes for the arc by the aid of which such rods are fused, and welding thus accomplished; or in fact, the rods can be used in oxy-acetylene welding. Such rods are melted by the heat from whatever source derived, the material from which they are made is caused to adhere closely to the work. For example, welding rods are in common use to build up worn parts, such as bits used in well drilling equipment; or to repair broken parts by furnishing a molten material fusing the parts together upon solidification; or to repair other defects, such as sometimes occur in castings of iron or steel.

It is one of the objects of my invention to make it possible to supply rods of this character that fulfill their function in a highly satisfactory manner, and that can be constructed inexpensively.

It is another object of my invention to provide in general an improved welding rod.

Although in its broader aspects, my invention is applicable to all types of rods, it is more particularly concerned with the welding of cast iron. It has been proposed in the past to utilize rods of ordinary cast iron as an electrode for welding or for building up defective or worn castings; but such rods are not universally applicable, because it is difficult to secure a good molecular union; and especially since a fluxing element must be used to ensure proper fusing of the metal. It is accordingly another object of my invention to provide a composite rod capable of being used for repairing or building up cast iron in a more convenient and efficient manner.

It is still another object of my invention to provide a novel composition that is capable of being used in a welding rod. In this connection, I have developed a novel and useful process of manufacturing such welding rods, particularly rods used in connection with cast iron by which process it is possible to utilize

cal and chemical characteristics of soft and fine-grained cast iron, and to vary this composition to secure any grade of "cast iron" desired.

My invention possesses many other advantages, and has other objects which may be made more easily apparent from a consideration of several embodiments of my invention. For this purpose I have shown a few forms in the drawings accompanying and forming part of the present specification. I shall now proceed to describe these forms in detail, which illustrate the general principles of my invention; but it is to be understood that this detailed description is not to be taken in a limiting sense, since the scope of my invention is best defined by the appended claims.

Referring to the drawings:

Figure 1 is a perspective view of one form of rod constructed in accordance with my invention; and

Figs. 2, 3, and 4 are end views of other forms of rods that embody my invention.

It is one of the features of my invention that by its aid, it is practicable to supply the material to be fused with the work in a very convenient manner. For this purpose, the composition is first made up, comprising the materials found to be advantageous for forming the welding rod; and since such composition is preferably in the form of a mixture including divided metallic or alloying particles, I provide a receptacle for the composition, such as shown at 11, Fig. 1. This receptacle in this instance is in the form of a rectangular trough of just sufficient thickness to impart rigidity to the bar, and so that its volume does not materially alter the composition of the complete bar. Such metal of about 30 mils thickness can be used for this receptacle, and it may be copper, brass, or iron. The container 11 can also be formed by stamping, rolling, forging or drawing. The composition 12 can be placed in the receptacle 11 while the composition is in a plastic state. This composition can be such as to provide a wearing layer of high





on of ordinary cast iron, for repairing or building up iron castings. In that case the container 11 should of course be made of iron or steel.

The important feature of the rod as thus described is that a metallic shell or vehicle is used for holding a welding composition, whereby such a welding composition can be conveniently applied. The bar or rod can be fused either by the aid of an electric current, forming an arc between it and the work, or by other means, such as an oxyacetylene flame. Of course my invention is not limited to the precise form of container for the composition; in fact, in some instances the container itself enters materially into the ultimate composition of the matter welded. Such a bar is shown in end elevation in Fig. 2, wherein the container bar 13 may be of low grade carbon steel, and may have a groove or recess 14 formed in it by rolling, drawing or milling, in which groove the composition 15 can be accommodated. The composition can be such as to alloy with the bar 13 when welded, to form a high grade steel alloy, such as tungsten steel, nickel chromium steel, or vanadium steel.

Still other forms of convenient containers can be used. In Fig. 3 a hollow tube 16 is shown, utilized for this purpose; and in Fig. 4, a triangular trough 17.

One of the most important features of my invention resides in the application of such forms as shown to the provision of rods for welding cast iron, and especially the provision of such composition rods that contain the necessary flux for welding. The manner for manufacturing such a rod will now be described in detail.

In order to maintain the material for the rods at minimum expense, I make use of cast iron borings or chips, which are cut from castings in the process of machining them. Such material can be obtained for little, for machine shops are usually hampered with their disposal. But no matter from what source obtained, I first of all grind the cast iron to small particles, to pass through a 20 mesh screen or finer, depending upon the ultimate size of the rods to be constructed. I then mix this granular material with a small proportion of other materials in accordance with the desired composition of the iron desired to be deposited. For example, if silicon, manganese, phosphorus, sulphur or vanadium are to be added, this can conveniently be accomplished by the addition of fine particles (60 mesh or finer) of ferro-silicon, ferromanganese, ferrophosphorus, or ferrovanadium. Carbon can also be added in any desired form; such as graphite, coke dust, bone black or lamp black. A small proportion of slag forming elements, such as aluminum and magnesium, can also

be added, in order to assist in the carrying off of all of the fluid or impurities.

To this mixture of granular particles there is added a binder, preferably carbonaceous, for holding the material together. Examples of such binders are linseed oil, fish oil, mola-see, glue, resin, or flour paste. Enough of the binder should be used to make a thick paste after thorough mixing of all of the materials. It is of course permissible to use other kinds of binders, such as sodium silicate, although a carbonaceous binder is preferred.

Due to the addition of such materials as ferro-silicon and ferrophosphorus in the composition, the weld takes place without material danger of any substantial chemical union between the carbon and the iron to form a hard compound. The carbon added to compensate for the carbon that is lost during the weld. The carbonaceous binder also assists in this function, and at the same time keeps the rod free from harmful ingredients that are present in other forms of binders.

In order to provide a flux for the materials, a small percentage of any appropriate material in a finely divided state can be incorporated in the mixture. Examples are fluor spar, carbonate of soda, or bicarbonate of soda. The proportions in the mixture are from about one to four per cent.

After this paste is thoroughly mixed, it can be put into the container 11, 16, or 17, such as shown in the drawings, and the finally baked for a sufficient time to stiffen and harden the composition. The rod is then ready for use in the well known manner, without the aid of additional fluxes or the like.

I claim:

1. A welding rod comprising a metallic container, and a homogeneous welding composition in the container, said composition containing substantially all of the material to be deposited by the weld.

2. A welding rod for depositing an alloy having the composition of cast iron, comprising a thin metallic container having a axial groove or trough therein, and a homogeneous composition of flux and of the alloy constituents in said recess.

3. A composition for use in welding an alloy for depositing by welding, an alloy having the composition of cast iron, comprising a homogeneous mixture of cast iron particles, a binder, and a flux.

4. A welding composition, comprising cast iron particles, finely divided alloying materials of such proportions as required in the final product produced by welding, a binder, and a small percentage of fluxing materials.

5. A welding composition, comprising cast



through a screen no coarser than 20 mesh, finely divided alloying materials capable of passing through a screen no coarser than 60 mesh, and of an amount sufficient to produce the desired ultimate alloy, a binder sufficient to make a thick paste of the cast iron and alloying materials, and a finely divided flux of between one and four percent of the entire composition.

6. The process of manufacturing a welding composition, which comprises disintegrating cast iron borings to granular fineness, mixing with these particles, finely divided alloying material and a fluxing material, making a thick paste of the above by the aid of a binder, and baking until stiffness and hardness is secured.

7. A welding composition, comprising homogeneous mixture of a metal, all materials entering into the weld, and a carbonaceous binder.

8. A welding composition, comprising homogeneous mixture of cast iron particles, ferrophosphorous, and a carbonaceous binder.

9. A welding rod for depositing and having the composition of cast iron, comprising a thin metallic container, and a welding composition therein including cast particles, and a carbonaceous binder.

In testimony whereof I have hereunto set my hand.

OSCAR L. MILL







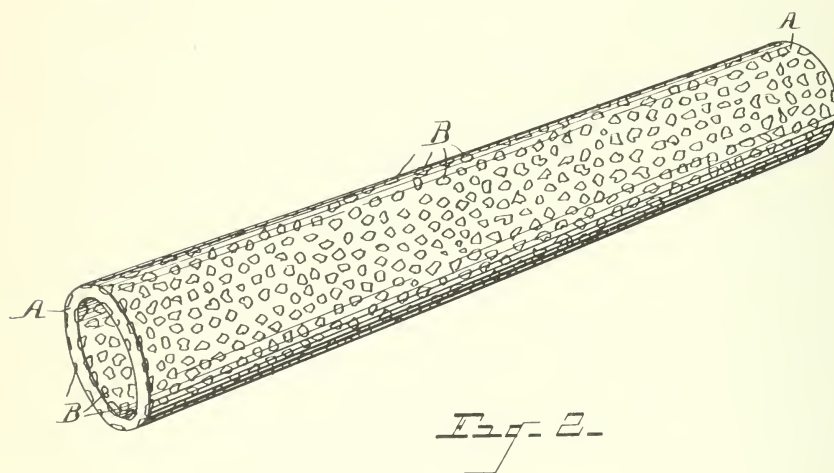
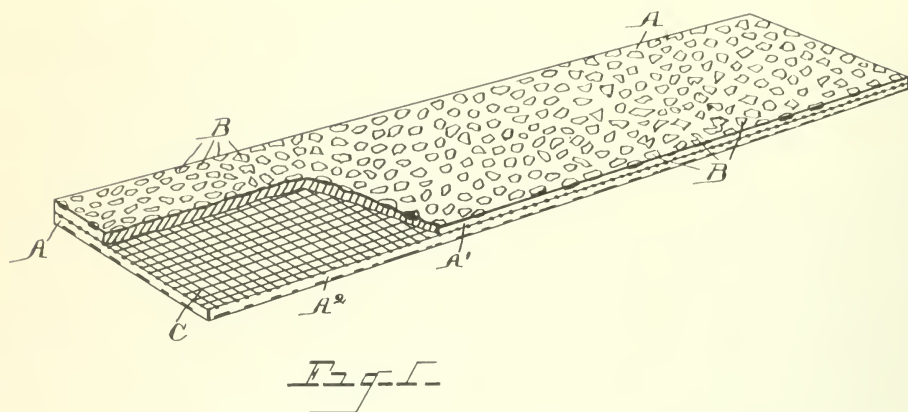
(No Model.)

J. W. WYCKOFF & J. M. WETTON.

METAL FOR BLADES, PIPES, &c.

No. 529,990.

Patented Nov. 27, 1894.



Witnesses

*O. B. Barninger*  
*John F. Miller*

*James W. Wyckoff* Inventor  
*John M. Wetton*  
By their Attorney  
*Newell & Wright*

# UNITED STATES PATENT OFFICE

JAMES W. WYCKOFF AND JOHN M. WETTON, OF JACOBSTOWN, MICH.

## METAL FOR BLADES, PIPES, &c.

SPECIFICATION forming part of Letters Patent No. 529,990, dated November 27, 1895.

Application filed July 14, 1893. Serial No. 480,484. (No model.)

*To all whom it may concern:*

Be it known that we, JAMES W. WYCKOFF and JOHN M. WETTON, citizens of the United States, residing at Jacobstown, county of Houghton, State of Michigan, have invented a certain new and useful Improvement in Metal for Blades, Pipes, &c.; and we declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

Our invention relates to certain new and useful improvements in the construction of metal for various uses, and it consists of the matter hereinafter described and claimed and illustrated in the accompanying drawings, in which—

Figure 1 is a view in perspective of a piece of metal embodying our invention, showing a portion broken away. Fig. 2 is a view in perspective showing a piece of metal pipe embodying our invention.

Our invention is intended to provide a metal for cutting purposes having hard cutting particles integrally united therewith. We will describe our invention as adapted and applied for the construction of blades and pipes used for sawing, drilling or cutting stone, as an example of the uses to which the invention may be put.

It is well understood that at present, stone sawing is done by gangs of soft iron blades with sand or crushed steel washed into the cut or kerf to assist in the work. In core drilling or prospecting also it is well understood that common pipe is used for the cutting bit, and the operation of the same, with crushed steel put into the hole occasionally, does the cutting.

The object of our present invention is to provide a metal for this and analogous purposes wherein crushed steel particles of any desired size, or other forms of steel, as of wire, or other particles or metal fragments are

tionary teeth or projecting cutting edge to the work formerly done by the loose sand or crushed steel employed in connection with soft metal blade or pipe.

Blades or pipes constructed in accordance with our invention will evidently facilitate and expedite the work to be done, enable the work to be done not only faster, but in a superior manner also and at less expense.

In the drawings A represents the surface of or body of the blade or the pipe. B represents steel particles rolled thereinto.

We prefer to construct the metal, of which the blades or pipes are constructed in parts, the crushed steel being pre-rolled into each of said parts. Between the parts we prefer to locate, for same purpose, steel wire, said parts with the wire therebetween being welded together and suitably tempered. This construction serves to give a most satisfactory cutting edge on the

A' and A<sup>2</sup> represent the two parts of the metal. In making or rolling the metal for blades or pipes, the two pieces of soft iron A' and A<sup>2</sup> of requisite thickness, are heated to proper degree of heat and between them is placed the steel wire C, if employed, the wire preferably extending cross-wise between the parts A', A<sup>2</sup> or cross-wise of the cutting edge of the plate or blade. The wire may be in form of wire netting, the wires lying cross-wise being of steel and those running in the other way or longitudinally of the blade being of soft iron, the soft iron when only being used to hold the steel wires in place and at distances apart. The crushed steel particles may be fed into the heated metal through a hopper or otherwise, as the metal passes through the rolls, and the whole is thus pressed effectually together. When tempered in the usual manner, the steel is hardened, but the iron soft.

While we have described our invention as applied to saws and pipes for stone cutting, we do not limit ourselves solely thereto, our invention contemplating its use for

g both into the plate, as may be de-  
It will be seen that the metal so made  
d cutting particles integrally united  
e soft metal may have a cutting face  
or both sides thereof as well as a cut-  
ge.

t we claim as our invention is—  
metal blade constructed in two soft  
parts, hardened wire located between  
rts embedded therein, said soft metal  
ith the intervening wire formed into a  
integral piece, substantially as de-

metal blade formed of two soft metal

parts having hardened fragments or particles  
embedded therein, and a wire netting em-  
bedded therebetween, one series of wires in  
said netting being hardened and running  
transversely across the metal plate, substan-  
tially as described.

In testimony whereof we sign this specifica-  
tion in the presence of two witnesses.

JAMES W. WYCKOFF.  
JOHN M. WETTON.

Witnesses:

A. H. ANDRUS,  
GEORGE PFEIFER.

During the proceedings had before the Court on the Order to show Cause why a preliminary injunction should not issue in the above entitled cause, there were introduced in evidence by plaintiff the following physical exhibits, to wit: Two rods and two welds referred to in the affidavits of Winston F. Stoodly and Walter Schumert, which were marked as follows:

The Hastellite rod with the red tip of the defendant; was marked EXHIBIT A, and its weld EXHIBIT B.

The tube Borium rod of the plaintiff was marked EXHIBIT C and its weld EXHIBIT D.

The plaintiff also introduced in evidence a verified complaint together with attached exhibits and the patent No. 1,803,875 in suit, a copy of which patent is here inserted.

[Printer's Note]: Patent No. 1,803,875 is not here set forth, as same already appears as a part of the Complaint (Tr. pp. 5-20). [110]

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#### CERTIFICATE OF JUDGE.

The foregoing Condensed Statement of Evidence, together with the Exhibits referred to and incorporated and set forth therein, is hereby allowed and approved, and the same is ordered filed as the Condensed Statement of Evidence to be included in the Record on Appeal in the above entitled cause, as provided for in Equity Rule 75.

Dated this 16 day of January, 1936.

WM. P. JAMES

United States District Judge.

[Endorsed]: Lodged Jan. 6, 1936.

[Endorsed]: Filed Jan. 16, 1936. [111]



[Title of Court and Cause.]

PROPOSED ADDITION TO CONDENSED  
STATEMENT OF EVIDENCE.

Plaintiff proposes the following addition to the Condensed Statement of Evidence under equity rule 75 to be added as page 23a:

In the event that defendant intends to rely upon the alleged defense of laches or estoppel by reason of certain correspondence passing between the defendant and plaintiff, or plaintiff's attorney, there should be included as a part of the statement of evidence following page 23a, the affidavit of Charles C. Sheffler in which he sets out copies of five letters passing between plaintiff and defendant.

FRED H. MILLER

CHARLES C. MONTGOMERY

Attorneys for Plaintiff. [112]

Received copy of the within proposed addition etc., this 15th day of January, 1936.

LYON & LYON,

By R. E. CAUGHEY,

Attorneys for Defendant. [113]

[Endorsed]: Filed Jan. 16, 1936.

At a stated term, to-wit: The September Term, A. D. 1935, of the District Court of the United States of America, within and for the Central Division of the Southern District of California, held at the Court Room thereof, in the City of Los Angeles, California, on Wednesday, the 27th day of November, in the year of our Lord one thousand nine hundred and thirty-five.

Present: The Honorable WM. P. JAMES, District Judge.

[Title of Cause.]

This cause having been heard before the Court on application of the plaintiff for a temporary injunction, on the record and affidavits offered on behalf of respective parties, together with argument of counsel the Court now determines that plaintiff is entitled to the temporary injunction, and such injunction is ordered to be issued; provided, however, that if the defendant shall furnish bond in the sum of \$10,000.00, conditioned to answer to all costs and damages that may be suffered by the plaintiff in the event the issues are determined in favor of the plaintiff, an injunction shall not issue. The amount of the bond as fixed may be increased or decreased upon application of either party. An exception is noted in favor of the defendant. [114]

In the United States District Court, Southern District of  
California, Central Division.

In Equity No. 690-J.

STOODY COMPANY, a corporation,

Plaintiff,

vs.

HAYNES STELLITE COMPANY, a corporation,

Defendant.

### ORDER FOR PRELIMINARY INJUNCTION.

THIS CAUSE having come on to be heard upon order to show cause why a preliminary injunction should not issue upon the affidavits and exhibits filed in consideration thereof and said matter having been argued in open court and due consideration thereof having been given and due cause thereunto appearing, IT IS HEREBY ORDERED:

That a preliminary injunction issue enjoining and restraining the defendant, its directors, officers, associates, clerks, servants, workmen, employees, and confederates, and each of them, from directly or indirectly manufacturing, using and/or selling, and/or causing to be manufactured, used and/or sold, and/or threatening to manufacture, use, and/or sell Haystellite composite rod and tube Haystellite with the intention that said welding rods be used in the practice within the United States of America or its territorial possessions in the practice of the process described and claimed in Letters Patent No. 1,803,875, dated May 5, 1931, and/or from supplying to the trade ingredients or

supplies with the knowledge and intention that they be used in practicing said process, and/or from in any wise infringing upon said Letters Patent and/or contributing to the infringement of said Letters Patent by others and/or conspiring with others [115] to so infringe said Letters Patent in any way whatsoever, and  
**IT IS FURTHER ORDERED:**

That plaintiff above named shall file or cause to be filed herein a suitable bond or undertaking, upon the filing of which the taking effect of this injunction shall be conditioned, in the sum of \$10,000.00, that plaintiff will well and truly pay to the defendant such damages not exceeding said sum as the defendant may sustain by reason of said preliminary injunction if the United States District Court finally decides that the said plaintiff is not entitled thereto.

**IT IS FURTHER ORDERED:**

That if the defendant shall file or cause to be filed herein a suitable bond or undertaking prior to the 6th day of December, 1935, in the sum of \$10,000.00 conditioned to answer all costs and damages that may be suffered by the plaintiff subsequent to November 27, 1935, in the event the issues are determined in favor of plaintiff, an injunction shall not issue.

**IT IS FURTHER ORDERED:**

That the amount of the bond furnished by either the plaintiff or the defendant may be increased upon the application made to the Court.

An exception is allowed and noted in favor of the defendant.

Dated this 6 day of December, 1935.

WM. P. JAMES,  
U. S. District Judge.

Stay of injunctive order is granted for 10 days from this date.

WM. P. JAMES,

U. S. Dist. Judge.

Approved as to form as provided in Rule 44.

.....,

Attorney for Defendant.

FRED H. MILLER,

Attorney for Plaintiff.

[Endorsed]: Received copy of the within this 4th day of December, 1935. Leonard S. Lyon, Attorney for Defendant.

[Endorsed]: Filed Dec. 6, 1935. [116]

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[Title of Court and Cause.]

### PETITION FOR APPEAL.

To the Honorable Judge of Said Court:

The above named defendant, HAYNES STELLITE COMPANY, a corporation, feeling aggrieved by the Order entered in the above entitled cause on the 6th day of December, 1935, DOES HEREBY APPEAL from said Order to the United States Circuit Court of Appeals for the Ninth Circuit, for the reasons set forth in the Assignments of Error filed herewith, and it prays that its appeal be allowed and that citation be issued as provided by law, and that a transcript of the record, proceedings and documents upon which said decree was based, duly authenticated, be sent to the United States Circuit Court of Appeals for the Ninth Circuit under the rules of such Court in such case made and provided.



AND YOUR PETITIONER FURTHER PRAYS that the proper order relating to the required security to be required of it be made.

ALL OF WHICH is respectfully submitted.

HAYNES STELLITE COMPANY,  
By HENRY S. RICHMOND,  
Solicitor for said Defendant.

LEONARD S. LYON,  
HENRY S. RICHMOND,

Solicitors and Of Counsel for Defendant. [117]

[Endorsed]: Filed Dec. 13, 1935. [118]

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[Title of Court and Cause.]

### ASSIGNMENTS OF ERROR.

NOW COMES the above named defendant, HAYNES STELLITE COMPANY, a corporation, and files the following assignments of error upon which it will rely upon the prosecution of appeal in the above entitled cause from the Order entered and recorded on the 6th day of December, 1935, by this Court granting plaintiff's application for a temporary injunction.

The United States District Court for the Central Division of the Southern District of California erred—

(1) In granting plaintiff's application for temporary injunction.

(2) In not denying plaintiff's application for temporary injunction.

(3) In not finding Stooddy patent No. 1,803,875 in suit invalid. [119]

(4) In enjoining the manufacture of defendant's Haystellite Composite Rod and defendant's Tube Haystellite.

(5) In enjoining the sale of defendant's Haystellite Composite Rod and defendant's Tube Haystellite.

(6) In not ordering that plaintiff's Bill of Complaint be dismissed.

WHEREFORE, Appellant Prays that said Order be reversed and that said District Court of the Central Division for the Southern District of California, be ordered to enter an Order vacating its Order granting plaintiff's application for a temporary injunction, and that it enter an Order denying to plaintiff a temporary injunction in this cause.

HAYNES STELLITE COMPANY,  
By HENRY S. RICHMOND,  
Solicitor for Defendant.

LEONARD S. LYON,  
HENRY S. RICHMOND,

Solicitors and Of Counsel for Defendants. [120]

[Endorsed]: Filed Dec. 13, 1935. [121]

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[Title of Court and Cause.]

ORDER ALLOWING APPEAL, WITH SUPERSEDEAS.

Considering the Petition for Appeal in the above-entitled cause this day presented, IT IS ORDERED that an appeal be allowed to Haynes Stellite Company, petitioner therein and defendant in this suit, from the order for preliminary injunction rendered against said defendant in the above-entitled and numbered cause, and that said appeal shall be returnable to the United States Circuit Court of Appeals for the Ninth Circuit, and that upon the execution of a bond in the penalty of Twenty-five Thou-

sand Dollars (\$25,000.00), said appeal shall operate as a supersedeas of said order and shall suspend until the final decree or appeal herein the effect of the injunction herein; and that a certified transcript of the record, testimony, exhibits, stipulations and all proceedings be forthwith transmitted to and filed in the United States Circuit Court of Appeals for the Ninth Circuit according to law as prayed for. This Court reserves the right to increase the Supersedeas Bond for sufficient cause shown.

Dated, Los Angeles, California, December 12, 1935.

WM. P. JAMES,

United States District Judge. [122]

[Endorsed]: Filed Dec. 13, 1935. [123]

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[Title of Court and Cause.]

BOND ON APPEAL SUPERSEDING INJUNCTION.

Know All Men by These Presents:

That we, HAYNES STELLITE COMPANY, a corporation organized and existing under the laws of the State of Indiana and having its principal place of business at Kokomo, Indiana, as principal, and UNITED STATES GUARANTEE COMPANY, a corporation organized and existing under and by virtue of the laws of the State of New York, with its principal place of business in the City of New York, State of New York, as surety, are held and firmly bound unto the above named STOODY COMPANY, in the sum of Twenty-five Thousand Dollars (\$25,000.00) to be paid to the said Stoodly Company, and for the payment of

which well and truly to be made, we bind ourselves, and each of us, and our and each of our successors in interest jointly and severally, firmly by these presents.

SEALED with our seals and dated the 13th day of December, 1935. [124]

WHEREAS, the above named HAYNES STELLITE COMPANY is about to prosecute an appeal to the United States Circuit Court of Appeals for the Ninth Circuit, to reverse the order for an injunction granted in the above-entitled suit in the District Court of the United States for the Southern District of California, In Equity, on the 6th day of December, 1935.

NOW, THEREFORE, the condition of this obligation is such that if the above named HAYNES STELLITE COMPANY shall prosecute its said appeal to effect, or if it fails to make good its appeal shall answer all costs adjudged against it by reason thereof and shall pay plaintiff all damages and profits which may result from its manufacture and sale of its welding rods, the manufacture and sale of which are by said injunction enjoined, from and after the date hereof until the final decision of said District Court thereon, this obligation shall be void, otherwise the same shall be and remain in full force and virtue.

BUT IT IS UNDERSTOOD that this bond shall not be considered as securing the payment of any damages or profits which may have resulted from the manufacture and sale of infringing welding rods prior to the date hereof.

HAYNES STELLITE COMPANY

By R. L. LERCH

Its Acting District Sales Manager

UNITED STATES GUARANTEE COMPANY

[Seal] By R. G. HILLMAN

Its Attorney-in-Fact

and M. S. BANKS

Its Attorney-in-Fact [125]



State of California,  
County of Los Angeles.—ss.

On this 13th day of December, 1935, before me, Eugene N. Frankenberger, a Notary Public in and for said County and State, residing therein, duly commissioned and sworn, personally appeared R. L. Lerch, known to me to be the acting District Sales Manager for the Haynes Stellite Company, the corporation which executed the within annexed instrument, and acknowledged to me that such corporation executed the same and that he had authority to execute the same for and on behalf of said corporation.

IN WITNESS WHEREOF I have hereunto set my hand and affixed my official seal in said County the day and year first above written.

[Seal]

EUGENE N. FRANKENBERGER

Notary Public in and for said State and County.

State of California,  
County of Los Angeles.—ss.

On this 13th day of December, A. D. 1935, before me Chas. E. Brown, a Notary Public in and for the said County and State, personally appeared R. G. Hillman and M. S. Banks, known to me to be the persons whose names are subscribed to the within Instrument, as the Attorneys-in-Fact of United States Guarantee Co. and acknowledged to me that they and each of them subscribed the name of UNITED STATES GUARANTEE COMPANY thereto as principal and their own names as Attorneys-in-Fact.



IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal the day and year in this certificate first above written.

CHAS. E. BROWN

Notary Public in and for said County and State.

My Commission expires January 12, 1938.

Examined and recommended for approval as required in Rule 28.

HENRY S. RICHMOND

Attorney for Defendant.

The foregoing bond is hereby approved to operate as a supersedeas as to said order for injunction.

WM. P. JAMES

United States District Judge.

[Endorsed]: Filed Dec. 13, 1935.

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[Title of Court and Cause.]

STIPULATION CONCERNING FORWARDING OF  
PHYSICAL EXHIBITS TO THE CIRCUIT COURT  
OF APPEALS.

IT IS HEREBY STIPULATED AND AGREED by and between the parties hereto, through their respective counsel, that the Hastellite Rod with the red tip of the defendant marked "Exhibit A" and its weld marked "Exhibit B", and the tube borium rod of the plaintiff marked "Exhibit C" and its weld marked "Exhibit D" be forwarded to the Clerk of the Circuit Court of Appeals for the Ninth Circuit by the Clerk of this Court, the same to be used by either or both parties in the argu-

ment before the Circuit Court of Appeals, the cost and expense of so forwarding the same to be borne by the defendant-appellant herein.

Dated this 23rd day of January, 1936.

FRED H. MILLER

CHARLES C. MONTGOMERY

Attorneys for Plaintiff.

LEONARD S. LYON

HENRY S. RICHMOND

Attorneys for Defendant.

The foregoing Stipulation IS APPROVED and IT IS SO ORDERED.

WM. P. JAMES

U. S. District Judge. [127]

[Endorsed]: Filed Jan. 24, 1936. [128]

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[Title of Court and Cause.]

PRAECIPE FOR TRANSCRIPT OF RECORD.

To the Clerk of said Court:

Sir: Please prepare and certify to the Clerk of the United States Circuit Court of Appeals for the Ninth Circuit copies of the following, the same to constitute the Transcript of Record on Appeal to said United States Circuit Court of Appeals for the Ninth Circuit on Haynes Stellite Company's appeal from the Order for Preliminary Injunction dated the 6th day of December, 1935:

1. Bill of Complaint, filed June 18, 1935;
2. Patent in suit No. 1,803,875;

3. Order to Show Cause, issued June 19, 1935;
4. Order of Court filed June 26, 1935;
5. Affidavit, and copies of letters attached thereto, of Charles C. Scheffler, filed July 1, 1935;
6. Minute Order of Court, of July 1, 1935;
7. Answer of Defendant, filed July 26, 1935;
8. Minute Order of Court, entered November 27, 1935;
9. Order for Temporary Injunction, dated December 6, 1935;
10. Assignments of Error, filed December 13, 1935;
11. Petition for Appeal, filed December 13, 1935; [129]
12. Bond on Appeal Superseding Injunction, filed Dec. 13, 1935;
13. Order Allowing Appeal, with Supersedeas, filed Dec. 13, 1935;
14. Citation, issued December 13, 1935;
15. Condensed Statement of Evidence, lodged January 6, 1936;
16. Notice of Lodgment of Narrative Statement of Evidence;
17. This praecipe.
18. Page 1 of Plaintiff's Proposed Addition to Condensed Statement of Evidence.

Dated this 21st day of January, 1936.

LEONARD S. LYON,

HENRY S. RICHMOND,

Attorneys for Defendant-Appellant.

Plaintiff waives filing of praecipe for any additional record.

CHARLES C. MONTGOMERY,

FRED MILLER,

Attys. for Plaintiff.

Jan. 21, 1936.

Due Service and receipt of a Copy of the within Praecept for Transcript of Record is hereby admitted this 21st day of January, 1936.

CHARLES C. MONTGOMERY,

FRED H. MILLER,

Attys. for Plaintiff.

[Endorsed]: Filed Jan. 21, 1936. [130]

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[Title of Court and Cause.]

CERTIFICATE OF CLERK TO TRANSCRIPT OF RECORD

I, R. S. ZIMMERMAN, Clerk of the District Court of the United States for the Southern District of California, do hereby certify the foregoing typewritten transcript comprised of one volume, and numbered from 1 to 129 inclusive, to contain the original Citation, and a full, true and correct typewritten copy of the original Bill of Complaint, Order to Show Cause, Order of June 26, 1935, Affidavit of Charles C. Scheffler, Answer, Notice of Lodgment of Condensed Statement of Evidence under Equity Rule 75, Proposed Addition to Condensed Statement of Evidence, Order of November 27, 1935, Order for Preliminary Injunction, Petition for Appeal, Assignments of Error, Order Allowing Appeal with Supersedeas, Bond on Appeal superseding Injunction, Stipulation concerning forwarding of physical exhibits to the U. S. Circuit Court of Appeals, and Praecept for Transcript of Record on Appeal, together comprise the record on appeal to the United States Circuit Court of Appeals for the Ninth Circuit;

I DO FURTHER CERTIFY that the fees of the Clerk for comparing, correcting and certifying the foregoing typewritten

record amount to \$22.05, and that said amount has been paid me by the Appellant herein;

IN TESTIMONY WHEREOF, I have hereunto set my hand and affixed the seal of the District Court of the United States for the Southern District of California, this 4th day of February, in the year of our Lord one thousand nine hundred and thirty-six and of the Independence of the United States of America, the one hundred sixtieth.

[Seal]

R. S. ZIMMERMAN,

Clerk of the United States District Court for the Southern  
District of California.

By EDMUND L. SMITH,

Deputy Clerk.

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[Endorsed]: No. 8119. United States Circuit Court of Appeals for the Ninth Circuit. Haynes Stellite Company, a Corporation, Appellant, vs. Stooddy Company, a Corporation, Appellee. Transcript of Record. Upon Appeal from the District Court of the United States for the Southern District of California, Central Division.

Filed February 5, 1936.

PAUL P. O'BRIEN,

Clerk of the United States Circuit Court of Appeals  
for the Ninth Circuit.